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ORIGINAL ARTICLES.

DIAGNOSIS OF DISEASE IN CHILDREN.[1]

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MEDICINE is approaching the exactitude of a science only in recent years. This is due mainly to the indefatigable labors of physicians at the bedside and in clinical laboratories, also to researches of the chemist and physicist.

Nevertheless, to the reader of medical literature there often comes a sensation of discouragement on encountering the accumulation of statements often contradictory, conflicting or unrelated, on the same lines of thought. The fault lies in approaching the subject without the exercise of a wise critical faculty attainable only through a practical familiarity with the laws of chemistry, physics, comparative biology, anatomy and physiology. It is by no means necessary that this knowledge should be full or elaborate, but the constant use of a fair and clear concept of fundamental truths, conditioning these subjects, is entirely feasible and most necessary.

Upon such a concept alone can a sure foundation be laid for progressive medical thought capable of uniform acceptance and practical results. Diversities in belief must always exist and aid in the development of truth, but in medicine these divergences are so wide and contradictory that we repeatedly fall under grave accusation of cherishing inconsistencies most hurtful to those seeking our advice. A tendency is plainly discernible now, however, among the best authorities to get back to elemental principles in forming decisions and recommendations. The one principle which must ever guide us is to think in physiologic factors in diagnosis as well as treatment.

On the subject of diagnosis a monumental literature exists testifying to skilful observation and patient gleaning among the products of wise minds, cemented by the systematic presentation of well formulated rules. Too often this resembles a towering mass of varied and suitable building material, rather than a finished and symmetrical structure evidencing skilful design. Much of this material on examination will stand revealed as a mere mass of authoritative opinions which obtain currency because of the keen observation of certain early men of genius, yet is far from exact, and much will prove to be mere variants in the history of outworn beliefs. Cherished and respected opinions of great thinkers, especially when simulating truths, have always exerted more influence on medical belief than is warranted. Our tendency is to retain these postulates of earlier teachers rather than to use, as working formulæ, the fundamental principles of growth and change, whereby alone we can do sound reasoning. We want not so much new facts, as a more practical application of those already recorded and tested, yet scattered and often unrelated truths whose efficiency is often almost lost by being locked up in large treatises, such as on physiology and pathology. The use of these treatises is largely confined to scientific specialists, and too rarely consulted by clinicians. Again our students should have no fascinating theories taught them, only well-attested facts and truths. Conjectures come to all. We need nothing in medicine more imperatively than teachers with clear practical minds who shall glean the best conclusions of reliable observers and research workers, and present these to the undergraduate in concrete systematic fashion; in tenable formulations unmarred by brilliant theories.[1] A constantly recurring error, dominating our concepts of disease, is the tendency to assume one or two symptoms as pathognomic and lose sight of the symptom-complex. A single obvious symptom may be predominant in a well-defined disease, but it may also be an expression, or characteristic feature, of many pathological processes; at other times it may be the result of previous degenerative changes, a neurosis, a psychosis, or expression of metabolic instability the result of neurotic disturbance. Indications obtained through peripheral phenomena reveal much, but conspicuously little attention is given to a study of many recognizable phenomena the immediate result of reflex disturbances in the segments of the cord. Knowledge of the intimate relationship between the arterio-motor mechanism of the organs, the nutritive centers and outlying parts of the body is needed to interpret many generic qualities of disease. Later the parts affected, or obviously disturbed, may and do require attention, but not to the exclusion of the primary or central derangement. We need broad-minded teachers who shall make clear the fundamental principles of early changes from the normal process, the governing innervation, direct and vasomotor, hence the normal variations in the blood supply, lymph circulation, cellular equipoise and, above all, the earliest evidences of divergences therefrom which may proceed so far as to merge into abnormalities producing changes recognizable as disorder, hence passing on to structural alterations sufficiently extensive to be regarded as pathologic, and finally into lesions. To do this should not tax ordinary professorial knowledge,

[1] Read by title before the Section on Children, American Medical Association, June, 1904.

[1] Conversation with many professors in medical schools confirms this opinion.

it merely demands a change in the point of view, keeping in mind the simple immutable laws of growth and presenting them in such a systematic fashion as shall best explain the pathologic lines of least resistance.

The subject of disease in childhood or youth can never become plain as it should till the physiologic variations between the young and the adult are differentiated for the student. This knowledge may exist, but it is seldom formulated and presented to the undergraduate. Few text-books allude to childhood physiology except in early chapters, and then inadequately. Those of us who have grown gray using the older methods may be eagerly alive to the importance of a different standpoint of teaching, but we can not do what younger men will ere long accomplish.

In diagnosis we have been for centuries proceeding on deductive lines, amassing a vast amount of accurate information, based on, it may be, sound scientifically winnowed facts and thence advancing to conclusions more or less practical. When there are more who shall be trained to proceed inductively along the foundation levels of biology, embryology and physiology and thence ascend to pathologic planes, vastly more light will be afforded by which to apply therapeutic principles from the same sources.

We must know more of normal growth and the phenomena of development. The energy of growth is a colossal force and significant in many departments. This may be defined as the sum of all the forces determining physiologic work causing the development of living organisms (Tremoliere) potential energy exists as a heritance in the ovaries. After birth energy is required from without as well as from within. While in the adult nutrition is necessary only to supply waste of the tissues, in the growing child many conditions demand hypernutrition due to its rapid development. (Ballantyne.)

The child of rapid growth usually fails of symmetric development in several directions. Disease processes, infections, accidents of nutrition, environmental influences, etc., all tend to initiate and emphasize minor deformities. Overgrowth usually leads, for instance, to poor thoracic capacity. If the thorax is for any reason disproportionately small and narrow a variety of special predispositions are encountered. In such individuals glandular engorgements and inflammations are common and difficult to control. Pneumonia is more severe and dangerous, also pleurisy, heart disease, especially carditis, peri and endo.[1]

Inadequate gaseous interchanges aggravate disorders of both lungs and intestines; the eliminating organs are oppressed, congestions are encouraged in various parts, and oxygenation is impaired. Of the potentiality of the full functionation of the great ductless glands we know as yet relatively little. When we do know, and our means of recognizing them are better specialized, it will afford excellent grounds for legitimate inferences and useful conclusions.[1]

In diagnosis our primal purpose is to recognize and elucidate the onset of functional derangements and detect disease in any stage or form. If, however, we fail to devote sufficient attention to morbid phenomena of the mind and morals we perform less than half our duty. Disorders of the mind are dependent upon one of two factors; either defects of development in the brain, or diseased processes of the brain, or retroactively. The purpose and aim of diagnosis rests upon the concept that by the early recognition of manifestations of morbid physiology we shall thereby find means to check the changes which would otherwise pass on to destructive alterations.

If this proposition obtains for the disorders of the physical functions how much more must it fulfill a valuable service for those of the brain which is a far more sensitive structure and especially liable to permanent damage form slight irritation. It is a great privilege, to mitigate bodily suffering, to limit the progress of structural degenerations, to prevent disablement and save life, but how vastly higher is the prerogative to turn aside those perils which jeopardize the budding intellect and rescue a tottering moral nature. Yet how little of this subject is the student taught, or again how much interest does the average practitioner display in this incomparably higher phase of his duties?

It should be the aim of the clinical teacher to emphasize unceasingly the urgency of obtaining the earliest possible indications, omens or prefigurements of departures from normal functionation; especially in children. When this is accomplished the greatest economy is effected; first, in the limiting of suffering and the progress of disease, and second, in forefending the organism from developmental defects. All life is a process of development but the effects of interferences are vastly more forceful and significant in the young. Diagnosis and symptomatology, as ordinarily presented, is adjusted to meet the requirements of well developed disorders with only secondary reference to the phenomena of onset. There is room for much useful research along the lines of prodromal and the first obtainable characteristic morbid phenomena. True it is that some of these early omens are not conclusive, but certain of them are more significant than credited. Certainly greater attention may be well bestowed upon their formulation and emphasis, for here are many of our triumphs or blunders to be made, unless our defects are mercifully condoned.

Diagnosis of the morbid condition of child-

1 Woods-Hutchinson's researches on the thoracic index are most suggestive. Jour. Am. Med. Assn., May 2, 1903.

1 Charles De M. Sajous has done great things to make this clear and leaving out the significance of his conclusions, still his book teaches us to think physiologically on growth and change. The second volume of "The Internal Secutions," with the contents of which I am familiar,, will supply invaluable data by which we may learn to reason more soundly.

hood involves something more than a mere search for evidences of disease. During the period of plasticity numerous influences prevail in all ranks of life to alter normal growth and organic development by which the foundations of constitutional weakness are often laid. These are in a great measure, preventable, at least in part. It is the duty of the physician to recognize and promptly rectify the evil effects of environment and training, and in so far as possible of inheritance. Hence it is the most important department of differentiation to possess clearly defined standards of growth, proportion, activities, sensitiveness, functional competence, intelligence and capacity for endurance. These standards should be the products of wide observation, reading, and experience, among normal as well as abnormal conditions, but unless tempered by judgment of a higher order, right conclusions are not assured. It should be the duty of clinical teachers to formulate prototypes which may obtain certain recognition. A careful presentation of the anatomy of childhood should be always offered; there is little enough in literature.[1] We can know little of the essential nature of childish ailments till these needs are better supplied. No heaping up of scientific facts along the lines of bacteriology, pathology or symptomatology can compare in practical utility to an equipment in applied physiology based on comparative embryology.

As physiology is generally taught it serves a limited purpose but when once the student realizes that practical thinking in pediatrics can only proceed from a use of the principles of embryology our concepts will be clearer.

The standard for each pediatrist is the ideal child; a composite picture of normal children, and cannot be formed too carefully nor from too thorough an interpretation of the data at his command. Next to the ideal child the diagnostician must erect for himself examples of permissible variants. In considering the broad subject of disease in the young, at least in America, we must not limit ourselves to children of pure Anglo-Saxon stock but hold in view the many other racial characteristics with which we are likely to come in contact.

Again, there are the crosses of Latin, Celt, Slav, German, Hebrew and other white races; also the hybrids of red, yellow and black races. These modifications exhibit laws of their own, as yet by no means clear, but deeply significant.

Inheritance of tendencies is recognized as a potential factor by most authorities. Where doubts obtrude on the mind of the clinician, as they inevitably must, the safe course is to read the latest teachings on the subject of inheritance and heredity and sift out the acceptable conclusions. Predisposition to disease is an obvious factor, admittedly forceful for harm.

[1] Among the best are those of George McClellan, Symington and J. W. Ballantyne. There is no systematic physiology of childhood in English. Scattered facts exist on both these subjects but they might be better correlated.

Difficulties of diagnosis are many enough among children normal in structure, in neural balance and in mind, but these grow greater where constitutional variations or deviations are present. Hence it is desirable to consider variants of types; peculiar and exceptional children. The normal processes are profoundly modified by peculiarities of temperament due to inheritance or acquired. This subject would demand, for full consideration, much space, but it will suffice here roughly to outline the salient points. The most valuable and suggestive literature I have found is that which emanates from the studies in childhood psychology instituted by E. Stanley Hall. An article by E. W. Bohannon covers the ground sufficiently to warrant using his classification, and though the study is more psychic than physical it is most helpful in diagnosis. The psychic factor as stated, demands deeper attention in clinical medicine, especially among children, than ordinarily obtains.[1]

The number of those studied by Bohannon was necessarily limited but covers over 1,000 individuals, enough from which to formulate certain types of mental and physical conformation. These types are the heavy, the tall, the stout, the small, the strong, the weak, the deft, the agile, the clumsy, the beautiful, the ugly, the deformed, those with birth marks, the keen and the mentally precocious, those with defects of sense organs or mind, the nervous, the clean, the dainty, the dirty, the disorderly, the obedient, the disobedient, the orderly, the teasing, the buoyant, buffoons, the cruel, the selfish, the generous, the sympathetic, those with imagination, the liar, the ill-tempered, the silent, the dignified, the frank, the loquacious, the inquisitive, the courageous, the timid, the whining, the "spoiled," the gluttonous, and the "only child in a family."

Many of these types cross; several are liable to include similar features, constituting composites of the types, making the study most complicated if carried to legitimate conclusions.

A review of Bohannon's findings and conclusions from the observation of this large group reveals much of practical interest to the clinician. It is manifestly impossible to discuss all, but confining ourselves to a few words about those types in which the physical features are dominant will prove of value. As to general health and mental ability there appears good reason for believing that the larger children, except the extremes, are superior to others. But it must not be forgotten that there are pathological cases in the group, especially in those showing marked departures from the average. Leaving out of account possible tendencies to acromegaly or myxedema they suggest a too early maturity. They are generally even-tempered.

Small children evidence delayed development. The less vigorous show degenerative phenomena, many are "delicate," ugly, deformed, or vicious,

[1] The recent book by E. Stanley Hall on "Adolescence" deals fully with the subject.

dull, mean or spiteful and tend toward morbidity. The strong children, while exhibiting many admirable qualities, are likely to be aggressive, harsh, course, rough. More is expected of them, hence they are often exhausted by compulsory work; their offenses are the result of excessive, often explosive, energy. The weakly children are likely to show pronounced evidence of degeneracy, often they are ugly and deformed, cruel and mentally deficient. Inheritance was not so frequently recognized a cause as parental follies, especially during the embryonal period. Temperamentally they are usually unfortunate.

The deft and agile show better health, yet are undersized. Clumsiness is found due to two causes; first, of want of development of the mechanism which functions the accessory movements; and, second, excessive inhibition of the same along with lack of emotional balance. Ugliness is usually accompanied by many evidences of degeneration physical and mental; in the deformed these deviations are even more decidedly present. Deformities are largely *ipso facto* manifestations of deviation, defects of central development exhibiting anatomic and physiologic faults, some of which are remediable. Under good care many of these improve greatly, some becoming fine adults. They are found to be treated with amazing lack of consideration by parents and associates, hence they suffer temperamentally.[1]

Among those showing defects in mind, sense organs and speech, there is much to indicate a general decline. They are morbidly retiring, dependent, and lack symmetrical development in part due to original defects and deficiencies in normal stimulus.

Those children grouped as "nervous" exhibit delicacy and instability of constitution; they lack size and vigor, are timid, sensitive and changeful, disposed to be irritable and meddlesome, lacking in control, hence untruthful. The extremely overdainty and the distinctly dirty, each excite suspicion of mental abnormalities. Buoyancy and teasing both indicate excess of energy; so also of cruelty, but here ancestral traits seem manifested.

Lying and imaginativeness are allied, and point to lack of self-control or selfish imitation; the associated traits are disobedience, ill-temper, thieving and bad health. Those who are peevish, untruthful, discontented, are usually of delicate make and evince instability and poor vitality. Those who are loquacious, voluable and inquisitive, lack inhibition.

Courageous children are usually healthy and strong in mind and body. Timidity has a physical basis, but may be acquired from bad environment. The "only child in the family" in 66 per cent. shows disadvantageous traits; they are usually of poor health, lacking much of normality, both mental and physical.

The "youngest child" the "only boy" or "the only girl" display many striking resemblances to the "only child." The value of such conclusions from a statistical study is very great; especially when it is noted that the writer started out with the expectation of arriving at, in many directions, radically different conclusions.[1]

In the examination of children next to a trained observation the most necessary item of skill lies in palpation. Extensive experience is needed to acquire this facility. Long years are not so efficacious as the consciencious use of every opportunity offered. Tactile sense grows rapidly if undivided attention is given to a few cases; more are better, but carelessness and guess work are liable to follow redundant advantages. Estimation of resistance, the tone of tissues, skin and subcutaneous structures, conditions of overcontraction or relaxation, temperature and the like are often of deeper significance in the infant than in the adult. Size and relationship of abdominal organs can thus be more accurately learned than by percussion, which in the very young is of less than secondary importance; indeed often misleading. The left hand, in right-handed persons, should preferably be trained in tactile acuteness. The hand should be laid down, quietly and gently, flat upon the part with a lingering touch permitting an appreciable amount of time to elapse for sense impressions to grow and become deliberately interpreted, imitating the methods of the blind. Much can be thereby learned not readily reducible to language yet helpful to conviction. Pure touch is suggestive, but a combination of contact and manipulation, supplemented by slow, tactful pressing and relaxing, reveals far more. So much concerning the areas usually explored by palpation, such as the abdominal and thoracic viscera, but much can be learned by the hand applied to all parts of the body, an act too rarely practised by physicians, and not thoroughly by some surgeons, whose search often involves less thoroughness than it might.

The consistency of the skeletal structures, particularly those adjacent to the vertebral column, will afford evidence of great value later to be defined. A highly significant phenomenon is the quality of resistance in the muscles, such as those of the neck in many conditions, both physical and psychic. Few children are too young to betray at some time or other rigidities, transient or protracted, yet significant of alterations in tissue from lymph stasis, nerve irritation or psychic exaltations or depressions. The educated hand is not employed to the extent it deserves in search

1 Boys are more liable to deformities than girls. Warner's Studies of London School Children, showed that the proportion of physical anomalies of boys was 8.27 per cent. to girls 6.78 per cent. Again, according to Newsholme (vital statistics, p. 61) the males outnumber the females in stillbirths, probably owing to the greater difficulties at birth. Thus in ten years, 1865-1875, there were in France, 144; Italy, 140; Belgium, 135; Sweden, 133, and in Prussia, 129 male, to every 100 female stillbirths. This seems to throw light on deformities incident to difficulties in labor; also thus intra-uterine disturbances are much more likely to occur with boys than girls. (Bohannon).

1 It is impossible here to review Bohannon's "Interpretation of data," but this is highly recommended to those who would get a fair idea of inheritance and heredity, both of physical and psychic traits. (See Pedagogical Seminary, October, 1896.)

for collateral data in organic disturbances and particularly where, as is common, the psychic state has contributed to induce excessive tensions or relaxations. In adults emotional disturbances often produce conspicuous hypertensions gravely affecting the continuance or exaggeration of lesser physical derangements which are happily often entirely relievable, mainly by teaching the sufferer to let go and relax. To a less, but appreciable degree, this obtains also among children and cannot be ignored. In acute diseases one often finds that pain is present, local or general, not so severe as to cause a cry perhaps, but merely altered sensitiveness beyond the degree of discomfort, and manipulation often relieves this to the extent that symptoms modify, sleep follows, temperature drops, etc. Abdominal organs frequently grow tense from gaseous distentions and skilful manipulations over the distressed area often relieves this, or gentle pressure may be applied over the lower dorsal or lumbar region; muscles may ache, nerves become tender from retained toxins and thus limbs or back, but especially the deep structures of the back or neck, become hypersensitive to the pressure and contractures arise.

It would seem admissable that few or no disease processes can exist in the body without manifesting themselves by disturbances of the nervous mechanisms of the area or parts involved.

These are brought about by changes in the circulation of central nervous system. A large part, by far the greater proportion of the nervous mechanisms of the body are located in the spinal cord. Again, disturbances of the circulation in the spinal cord have been found to be expressed externally by alterations in the conditions of the tissues supplied by the posterior primary divisions of the spinal nerves, as well as in the peripheral parts diseased.

A recent and most important contribution to the study and elucidation of disease, has been made by the observations of John P. Arnold and published in the *International Medical Magazine*. As demonstrator of physiology in the University of Pennsylvania, he made special researches on the clinical significance of the inter-relationships between the blood supply of organs and their functual activities, and claims to have systematized our knowledge of the vaso-motor mechanisms. This method of diagnosis is based upon rational physiological principles of much utility, not only of and for itself, but confirmatory of data gained through other avenues. Oftentimes by this method much can be learned more helpful in outlining treatment than through any other sources, because explanatory of the character of the derangement and on broader principles, supplementing facts learned otherwise.

He points out that there is a compensatory relationship between the circulation in the tissues of the back, lying adjacent to certain areas of the cord, and the circulation in the local segments.

Elaborating these observations he has been able not only to modify acute and chronic ailments, often to an extraordinary degree, but has also evolved a system of diagnosis. This last is so helpful that, when perfected and amplified by clinicians, it seems destined to offer a more exact and yet simple means of estimating the nature and extent of derangements than is afforded by many of our commonly accepted means of physicial exploration, as well as supplying important therapeutic possibilities.

Thus the phenomena of disease are studied from the standpoint of the central nervous system and not only from peripheral phenomena.

This department of symptomatology is still in its infancy, and even in the hands of enthusiastic experts can as yet only reveal indications. More accurate specifications and gradations can be reached in proportion to the personal equipment of the observer in physiologic knowledge and the natural history of disease. When clinical phenomena shall be interpreted more closely along physiologic lines and this principle recognized and employed by a larger number, we may expect records of refinements and exactitudes revealing many facts hitherto unattainable.

The principle on which this system of diagnosis is founded is the well established fact, familiar to physiologists, but not yet applied by clinicians, that a reading of the viscero-motor and other activities must be sought through a comprehensive knowledge of the vasomotor mechanisms, and the spinal segments from whence a viscus is controlled.

Much importance is ordinarily attached to the agency of the sympathetic nervous system. When, however, it is borne in mind that this system is a mere outgrowth from, and entirely secondary to, those centers in which impulses are initiated and controlled, we must approach the subject of organic and other derangements with the significance and responsibility of the centers in the cord and in the various segmental combinations, kept constantly in view. The prevailing belief as to the source of the functions of the sympathetic is well illustrated by M. Duval (Sajous) who says, "It is now recognized that most of the nervous phenomena of the visceral functions have the spinal cord for their centers, and that even for its vasomotor functions the sympathetic nerves utilize only borrowed power originating in the upper portion of the spinal axis; the same obtains in respect to its influence upon the heart, and also with most visceral reflexes, the centers of which are in the cord; so that even the expression sympathetic system to-day means nothing."

Further, effects upon the blood supply of all parts of the body can be wrought by influencing the centers in the spinal cord more directly and simply, and through them exerted upon the sympathetic centers and ganglia, than from measures directed to the organs disturbed. Per contra, disturbances in the various organs, systems, and tissues, being due to circulatory changes induced

reflexly upon the central nervous system, the major portion of the nervous mechanism being located in the spinal cord, disturbances of the circulation in the cord are expressed by alterations in the structures of those parts supplied by the posterior primary divisions of the spinal nerves, as well as in the part affected. It is then to be inferred that local changes will be manifested in the tissues of the back along side the vertebral column. During the continuance of diseased states, or lesser disturbances, pronounced alterations are to be observed in those tissues immediately innervated by fibers arising in the spinal segments whose integrity is disturbed by the derangements in function of organs and areas dependent upon those segments. In brief there is both a nutritional and sensory reaction exhibited upon the erector spinæ muscles, and allied structures, caused by the disturbed circulatory equilibrium in areas depending for vasomotor regulation on certain groups of segments of the cord. There is, as has been said, a compensatory relationship existing between, first, the surface muscles and the skin supplied by the posterior primary divisions of the spinal nerves, and second, the blood vessels of the cord and the deep structures, organs and remoter parts innervated by fibers whose cell bodies arise in that region of the cord.[1]

Almost nothing is to be found in the literature of clinical medicine which directs attention to the varying conditions of the structures of the back. Orthopedists seem to confine their observations chiefly to the gross conditions of the ligaments, muscles and bones. Neurologists take little account of the gross status of tissues, other than those showing alterations, motor or sensory.

Irregular practitioners of one type or another have, from time to time, attached much significance to the status of the ligaments and attitudes of the vertebræ. "Dislocation of the bones of the back," as a common cause of functional derangement, is not for a moment to be accepted. The highest authorities on anatomy state that, except when long standing or progressive disease processes have been the cause, as in aggravated "lateral curvature" or tuberculous disease, changes in relationship of the vertebræ are practical impossibilities. Relaxation of the lateral and posterior spinal ligaments, due to nutritive faults, produces often the appearance of dislocation, but these phenomena disappear by restoration of the tonus of the shrunken tissues, chiefly through mechanical stimulation.[2] Thus, any agent which causes vasoconstriction in the nerves and muscles of the back, contiguous to the spinal column, will produce, per contra, dilatation of the vessels in the cord, and of the organs and parts beyond in the line of innervation.

Any agent which produces dilatation of the blood vessels supplying the tissues of the back will, by compensatory action, induce constriction in those of the cord, and beyond parts. The significance of this is at once made plain and its value manifested not only as a factor in diagnosis, but in treatment.

The element of doubt which can be urged against this view, is not that the especial conditions to be described actually exist. Highest physiologic authorities can be cited to prove the first, but whether this alteration in the tissue resistence or vaso-tonus can be demonstrated to such an extent as will produce any practical results in either the muscles, or more potently, in the functional status of the organs and peripheral parts, depends upon the evidence of clinical results. This is amply demonstrated to those who have studied the question practically.

It is plain to the perceptive hand that these muscles are affected, and according to definite laws of innervation, showing conclusively that where certain organs or parts are deranged, the corresponding muscles do show these changes. Again, where these muscles exhibit characteristic changes there are assuredly derangements in the organs and tissues corresponding to the innervation.

Again in the normal individual these compensatory conditions are not conspicuous, but where there is a definite derangement the evidences are obvious and clearly demonstrable, and most helpful in diagnosis.[1]

Dr. Arnold formulates certain generalizations which are to be noted upon a careful survey and palpation of the back. On inspecting the back of one who is, and has always been, perfectly sound there will be seen (if certain attitudes are assumed to bring them into prominence), the spines of the vertebræ in normal alignment, distance apart, and degree of posterior projection. If there has been a history of long continued or recurrent disturbances of the internal organs these are frequently revealed by alterations in the tonus of the blood vessels of those muscles and other tissues innervated by, or lying adjacent to, the governing segments of the cord from which the organs at fault are reflexly controlled through their vasomotor connections. The form change exhibited is an atrophy of some, infiltration and thickening of others; and if long continued by asymmetries of the vertebræ, the spines apparently pointing in different directions. If the lesions have become chronic the spines are found separated, due to relaxation of the posterior ligaments, until between two or more marked depressions appear, or several are depressed below the normal line of projection. This disor-

1 The spinal cord viewed from the embryologic standpoint is a cylindrical tube of nervous tissue made of the fusion of bilateral ganglia in some of the lower worms. This view of the spinal cord is essential to the proper concept of the nervous mechanisms to man and the higher animals.

2 Attempts to "replace" these so-called "dislocated bones" and to relieve pressure on nerves, the creed of the osteopath, sometimes results in benefit, not by accomplishing the object aimed at, but through effects wrought upon the centers of vaso tonus and lymph activities by mechanical or other stimulation. Where, as sometimes happens, undue force is used to "pull or push" these tissues in place, harm is often wrought of which little is said, or to which other causes are assigned.

1 It must be said, however, that unless the observer possesses more than the average tactile acuteness, nothing will be noted except certain gross infiltrations or atrophies. Persistence will be rewarded by soon achieving much satisfactory information.

ganization of the vertebræ is more apparent than real, the asymmetries being due to loss of tone and relaxation in the supporting ligaments, will disappear later as is proved by a prompt restoration of alignment under appropriate treatment. In children, even very young ones, these phenomena are readily noted as has been done for two winters in my clinic at the Children's Hospital, where certain fourth-year medical students beside my assistants, usually four in number, have acquired much dexterity in detecting these changes.

The examination of the patient should be made while lying on the side and facing the operator with the head slightly elevated and all the limbs so arranged as to secure the utmost relaxation of the tissues of the back. The palpation is made by the cushions of the examiner's fingers lightly placed over the structures next to the line of the vertebræ. He draws them gently upward and downward to and from the vertebral column an inch or two, rolling the muscle fibers under hand, and carefully estimating their density, elasticity, and separability; with just enough pressure to determine resistance and sensitiveness. After gently palpating the entire length of one side of the spinal column the patient is turned on the other side and the examiner again facing the subject the corresponding tissues are studied in the same way. Finally the patient assuming the dorsal decubitus, the examiner stands at his head and the lateral and posterior tissues of the neck receive attention.

In most acute conditions and exacerbations of chronic states there exists more or less hypersensitiveness in the tissues adjacent to those segments of the cord corresponding to the areas in which there is disturbed innervation. Alterations are found also to an even greater extent in the muscle fibers, due to infiltration, thickening, etc., producing a cord-like condition which slips back and forth under the palpating fingers in a manner resembling tendons or strands of muscle in tension. In places also the structures will occasionally be found to have lost tone to such an extent as to feel like dough, or, through atrophy, may seem absent. In acute conditions, like catarrhal disorders of the mucous membrane of the head, stomach, intestines, bronchi or of the genito-urinary cycle, the tenderness is often marked in certain definite regions disappearing promptly as recovery follows. During the progress of pneumonia and bronchitis the tenderness is rather less but the infiltrations are perhaps greater. In acute disorders of the genito-urinary organs moderate tenderness is observed over the lumbar areas and especially over the sacral nerves.

These sensory phenomena are less common in children than in adults if pain is a feature of the malady. Gentle pressure over the tender spot, at first disagreeable, soon produces relief and is welcomed; in some states relieving the pain or discomforts markedly and promptly. So in acute disturbances of the throat, nose and larynx, in addition to the sensory disturbances, changes in resistance in the upper dorsal areas are noticable as well as in the muscles of the neck. Personally I am not confident enough of my observations as yet to specify the precise significance of all the changes noted because there is much individual skill required to differentiate or interpret findings, but have already derived much practical information by this means, and as my skill grows I regard it with increasing favor.

To make use of this method of diagnosis requires a systematic reading of clinical facts in the light of broad physiological principles. Since few students are adequately grounded in this, it requires a readjustment of knowledge and careful study of the border land of physiology and pathology.

In a personal communication Dr. Chase Lester Leonard has given a résumé of the diagnosis possibilities of the Roentgen rays in disease in childhood.

The Roentgen rays have found many valuable applications in the diagnosis of children's disease. The skiagraphic method is, of course, more accurate than the fluoroscope, since it introduces less of the personal equation. The fluoroscopic method is practically adapted to the examination of children as they are more readily agitated. It, however, finds its greatest value in detecting abnormal movements, or absence of movements, such as restrictions of respiratory action in the diaphragm. This restriction in motion is seen where the normal capacity of the lung is altered either by congestion, consolidation, abscess or pleuritic effusion. It also determines their location as the darkened area contracts sharply with the normal lung, which is less opaque, and alters with inspiratory movements when the greater mass of air makes it appear more translucent. The more accurate detail afforded by the skiagraph is essential in locating accurately abscesses in the lungs and circumscribed pleuritic effusions. It also affords a better idea of cardiac enlargement. In purely medical conditions the results are a marked addition to our method of making a diagnosis. In surgery it affords more accurate diagnosis than can be obtained by other means. Thus the exact extent and character of congenital bone defects, or malformations, is determined and they are differentiated from pathological processes, as coxa vara are easily differentiated from simple congenital dislocations.

The contrasts afforded between diastasis, dislocations and fractures are also of greater utility. The ability to detect renal, ureteral and vesical calculi is a marked advance in precise diagnosis. The exact size and position of the calculus can be thus determined without passing a sound or subjecting the patient to any chance of infection. These calculi can in this way be detected as soon as a suspicion points to them and before they have done irreparable injury and before the symptoms have become so marked as to be otherwise readily determined.

SYMMETRICAL ENLARGEMENT OF PAROTID AND LACRIMAL GLANDS—NODULAR IRITIS.[1]

BY COLMAN W. CUTLER, M.D.,
OF NEW YORK.

THIS case is offered as an example of a very rare condition, and in conjunction with the deposits in the iris, it is believed to be unique:

Case.—October 11, 1903: Sophie Ferguson, colored, age twenty years, cook and laundress. Her home is near Norfolk, Virginia, but she has lived for more than a year near New York. General health has always been good, no severe illnesses, no history of malaria or of pulmonary diseases, nor of syphilis. The family history is negative.

For about one year she has noticed a swelling in front of both ears which for six months or more has seemed to her to be unchanged in size. It has always been painless. The swelling of the lacrimal glands has attracted her attention recently. About four months ago she noticed that the right eye was irritable; it was not painful or bloodshot, but there has been occasional neuralgic pain in the temples, especially of the right side. Vision in the right eye has failed.

Examination.—Both parotid glands are enlarged, with even, smooth surface and firm consistency. Not tender on pressure, and the skin is freely movable over them. Their dimensions are:

Right parotid: Greatest anterior posterior.9 cm.
Greatest vertical .....7 cm.
Left parotid: Greatest anterior posterior..5 cm.
Greatest vertical .....7 cm.

The protrusion of the glands is very noticeable. Both lacrimal glands are palpable below the orbital margin, filling upper and outer thirds of lids nearly to outer canthus. They are firm, lobulated, rather uneven masses. The submaxillery glands are somewhat enlarged. Cervical, epitrochlear, preauricular and inguinal glands are just palpable. Mouth is normal, mucous membrane pale. Liver and spleen not enlarged, ovaries apparently normal. Mammary glands normal. Examination of lungs is negative.

Examination of eyes.—Conjunctivæ normal. O.D. slight ciliary injection, cornea rather dull with surface slightly roughened, with a very fine granular appearence of the stroma. Numerous small precipitates on Descemet's membrane. At the angle of anterior chamber are six or seven nodules smaller than the head of a pin, of yellowish or pale pink color. Some of these nodules have a fine vessel winding around or over them. They are arranged close together, and to some extent are confluent. Several very small white points protrude from the surface of iris, but otherwise its stroma appears normal, brown, with markings possibly a little blurred. Several fine posterior synechiæ. Tn. Lens clear, vitreous, hazy. Fundus not seen.

O.S. Cornea, fewer precipitates, no synechiæ, Iris, vitreous and fundus normal.

Vision O.D., 20/200; O.S., 20/30.

Urine: Normal.

Blood examination, October 29, 1903, by Dr. J. T. Gorton: Hemoglobin, 9 per cent.; red cells, 4,352,000; white cells, 5,200.

Differential count—

	Per Cent.
Polynuclear neutrophiles	59
Large lymphocytes	15
Small lymphocytes	22
Eosinophiles	0
Basophiles (mast cells)	2.7
Transitional forms	1.0

Blood examination, November 23, by Dr. F. C. Wood: Hemoglobin, 70 per cent.; red cells, 4,730,000; white cells, 5,900.

Differential count—

	Per Cent.
Polynuclear neutrophiles	65
Large lymphocytes	18.5
Small lymphocytes	7.5
Eosinophiles	3.0
Basophiles (mast cells)	1.5
Transitional neutrophiles	4.0

Dr. Wood writes: The result of the blood examination is entirely negative, except for a slight anemia. The proportions between the leucocytes are quite within normal limits."

The patient remained under observation for two months; during this time the parotid tumors became a little smaller, the lacrimal glands remained the same. The iris in the right eye showed slight changes from time to time, the tumors in the angle becoming larger, and the protrusions from the surface more numerous; the white dots on the dark iris presented a very striking appearance. In the left eye, several small nodules appeared in the angle of the anterior chamber, and although no white points were visible in the surface of the iris, there were several places where the tissue protruded as if nodules might appear.

The treatment was at first iodide and mercury in increasing doses, then arsenic, increased to 15 drops of Pearsons's solution, and maintained at that until the limit of tolerance was reached, and finally pilocarpine given in full doses. The parotids, and the eyes for briefer periods, were exposed to the X-rays, but without noticeable improvement. During the administration of iodide and mercury the condition of the iris grew steadily worse, the exudates on D's membrane more numerous, and also the protrusions from surface of iris. Under large doses of arsenic the condition appeared to improve somewhat, and she was advised to continue that treatment after her return to her home. Dr. B. R. Kennon, of Norfolk, very kindly examined the patient July 13, 1904, and writes as follows: "The small projections on the iris are very few in number, but both irides are bound to the lens by many points of adhesion. The cloudiness in the cornea I cannot make out to be confined

[1] Read at American Ophthalmological Society, July 14, 1904.

to Descemet's membrane, but seems to be in the stroma as well. She states that the parotid glandular enlargement has markedly decreased, and now there is but slight enlargement there. I cannot make out any lacrimal glandular enlargement."

It will be well to consider first the symmetrical enlargement of the parotids and lacrimal glands. This condition was first recognized as a disease by Mikulicz in 1888 in the *Berliner klinische Wochenschrift*, and more fully described in Billroth's Festschrift in 1892. In this case, also, the blood was normal, the spleen and lymph glands not enlarged. The disease made itself manifest by symmetrical swelling of parotids, submaxillary and lacrimal glands. There was in addition glandular swelling in the roof of the mouth. About two-thirds of the tissue of the swollen lacrimal glands was removed, as they were the cause of the greatest annoyance to the patient, but the tumors returned in a short time. A second time a more radical removal was made, and until death from appendicitis, three months later, there had apparently been no return. The microscopical examination showed that the tumors were composed almost entirely of small round cells among which the acini of the glands were intact. Histologically, they might be lymphoma or lymphosarcoma. If the former, one would expect enlargement of the other glands or of the spleen, and the latter would certainly show a more malignant character.

In 1889 Haltenhoff and in 1891 Fuchs each reported a similar case. In that of Fuchs the portion removed was composed of lymphoid tissue. It remained practically unchanged in spite of arsenic, which was not well borne, during a period of fourteen months. In Haltenhoff's case the tumors disappeared spontaneously or with syrup of the iodide or iron, in less than a year. Fuchs saw two other cases in all respects like the first of Mikulicz, but less pronounced. The tumors diminished after the continued use of arsenic for months. These are mentioned by Mikulicz but, so far as I know, have not been reported in detail.

In a paper by Kümmel (*Mitteilungen aus dem Grenzgebiete der Medicin und Chirurgie*, 2, 1897) 21 cases are listed which correspond in some respects to these. If we exclude those with leucemia and those in which the lymphatic glands are generally enlarged, there remain 14 cases in which parotids or lacrimal glands were swollen, and in seven cases both parotid and lacrimal glands were involved. The prognosis has been favorable. The tumors disappear, as a rule, in from a few months to two years under treatment with iodide or arsenic. After complete extirpation they have not tended to return. With regard to this fact Kümmel and Axenfeld made the following observation:

"The absence of relapses after complete removal of the glands is important in separating this disease from lymphosarcoma and pseudoleucemia, in both of which diseases relapses are to be expected."

Since in our case there has been no examination possible of the tumors, it is not easy to classify it, but clinically it corresponds to the cases of Mikulicz and Kümmel rather than to that of Axenfeld (*v. Graefe's Archiv*, Bd. 37) and others where there have been lymphomata in the orbit, and in the most varied localities. The assumption is that in such cases the exciting agent has been brought by the blood or lymph channels, while in the cases in which the growths have been limited to the parotids and lacrimal glands, the access to the glands has been through the ducts, from the mouth and conjunctiva; this is probable in a recent case reported by Baas (*Zeitschrift für Augenheilkunde*, September, 1903).

In our case, however, there is the limitation of the new tissue to the parotid, submaxillary and lacrimal glands, but in addition a uveitis of so unusual a form that the diagnosis cannot be made with confidence.

Such a uveitis, however, is of endogenous origin, syphilitic, tuberculous, lymphoid or from some infection not at present to be classified.

Millée and Vidaur (*Le Progrès Médical*, Tome 16, October 25, 1902) report a case of double dacryoadenitis with double iritis: Male, aged forty-two years, woodcutter. The patient complained of a firm, movable, painless swelling in the upper outer part of both orbits, noticed ten days before he was first seen by the authors. Eight days later an acute attack of iritis occurred with numerous synechiæ and two little "papules, reddish yellow in color, size, the head of a pin in the lesser circle of the iris." There was also a papular eruption of the skin. These symptoms responded promptly to vigorous antisyphilitic treatment. This case is interesting only because it combines the lesion of the lacrimal glands with iritis, but the etiology puts it in a different category as our case was of a chronic, indolent nature, and, moreover, it grew worse under antisyphilitic treatment.

The literature of tuberculous iritis is very extensive. Leber has described cases under the title of "Attenuated Tuberculosis of the Eye" (Bericht der ophthal. Gesellschaft, Heidelberg, 1891), which are striking in their fluctuations and tendency to spontaneous disappearance, and which, clinically, must have resembled the present case in many respects. Also, the appearance of the iris in our case is not unlike some cases of inoculation tuberculosis.

Stieren (*Johns Hopkins Hospital Bulletin*, November, 1901) reports a case of dacryoadenitis and conjunctivitis with general tuberculosis, and gives a review of the contributions to that phase of the subject.

Gallasch (*Jahrbuch für Kinderheilkunde*, Neue Folge, VII Band, 1874, p. 87) reports a case of a leucemic child with, among many other symptoms of leucemia, extreme enlargement of tear

glands and parotids. It is interesting to note that the microscopical appearance of the glands was strikingly similar to that of the case described by Mikulicz and others, in which there was no suspicion of leucemia.

Shoemaker (*Annals of Ophthalmology,* July, 1904) reports a case of bilateral enlargement of the lacrimal glands, with a discussion of the nature of that and related conditions.

Michel, in 1881 (*v. Graefe's Archiv,* Bd. 27, 11, p. 256), described and depicted most clearly, a case of pseudoleucemia which seems to have a striking similarity, as regards the appearance of the iris, to that under discussion. Michel considered the tumors in the iris to be lymphomata in a late stage of the disease, because of the fibrous character of the cells, combined with the new lymphoid tissue.

If the symmetrical enlargement of the glands and the uveitis are to be brought into the same category, we are justified, in view of Michel's case, in considering them both as a manifestation of lymphoid activity, due to some unknown agent circulating in the blood.

Häckel (*Archiv für klinische Chirurgie,* Band 69, p. 191) describes an interesting case in which the patient who had suffered a severe injury to the kidney, to which, however, no etiological significance is given, developed a severe enteritis, associated with symmetrical enlargement of the parotids and lacrimal glands. Häckel classes these latter conditions together.

It is obvious that the symmetrical swelling of the tear glands and parotids occurs in a group of cases by itself as an idiopathic condition, and it is believed by Mikulicz and Häckel that this group is an infectious disease in the broadest sense of the term, although no organisms have been found by the most careful search in the glands or blood.

In another group the same symmetrical enlargement occurs in conjunction with leucemia and pseudoleucemia, and the modern tendency is to attribute these diseases, also, to a bacterial origin.

In our case the iritis is an additional, and it would seem, a conclusive argument in favor of the bacterial origin of the disease, whether we classify the condition as pseudoleucemia or not, which is, after all, a mere clinical way of begging the question.

The tendency of our case seems to be toward recovery, as is shown by Dr. Kennon's recent report, already quoted. The limitation of the lymphoid tissue to parotids and lacrimal with a relatively good prognosis, points to an essential disease in which the growths are influenced by the functional activity of these organs, as in mumps, or else the result of infection, as is suggested by Mikulicz and Häckel, and to this view the iritis with its sluggish course, and fluctuations coinciding with those of the glands lends the strongest possible confirmatory evidence.

OVERLAPPING THE APONEUROSES IN THE CLOSURE OF WOUNDS OF THE ABDOMINAL WALL.[1]

BY CHARLES P. NOBLE, M.D.,
OF PHILADELPHIA;
SURGEON-IN-CHIEF, KENSINGTON HOSPITAL FOR WOMEN, PHILADELPHIA.

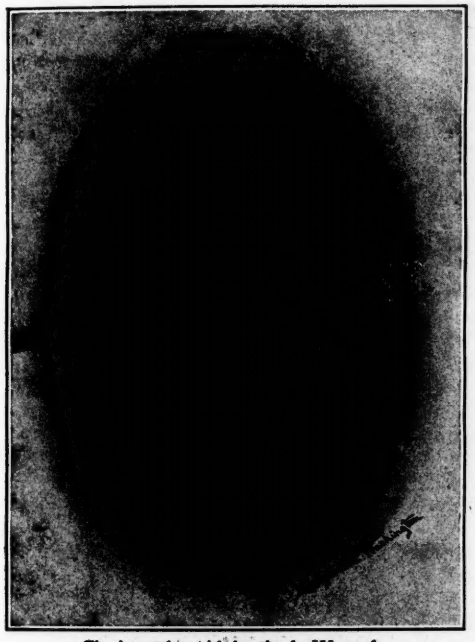
IT is my desire to bring to the attention of the Society the importance of overlapping the aponeuroses in the closure of all wounds of the abdominal wall, no matter what the location of the particular wound may be. The principle is equally applicable to incisions in or near the median line, to lateral incisions whether made for operations upon the stomach or gall-ducts, or for operations for appendicitis, or for incisions in the groin, whether these are made in the operation for shortening the round ligaments or for the cure of hernia. This principle I first applied in operating for an umbilical hernia April 7, 1894, and since January, 1897, it has been applied as a routine practice in the closure of all wounds of the abdominal wall, no matter what their nature.

It is now a generally received principle that the proper closure of incisions in the abdominal wall involves the union of homologous structures, and it is almost as generally accepted that this is best secured by the employment of the tier or étage suture. There are still surgeons who claim that equally as good results can be obtained by means of the through and through suture, but the claims of these are contrary both to the theoretical considerations involved and to the general experience of the profession. While the object of the suturing of incisions is to bring the homologous structures of the wound in apposition and to restore the abdominal wall to its original anatomical relations, it is nevertheless true that from the standpoint of the prevention of hernia the most important point is to secure firm union of the aponeuroses; because the strength of the abdominal wall, from the standpoint of resisting intra-abdominal pressure depends more upon the integrity of the aponeuroses and fasciæ than upon the union of the other structures involved. This proposition is so generally admitted that it is unnecessary to adduce evidence in its support. The problem then is as to the best manner of suturing the aponeuroses to insure firm union of these structures. The usual method advised is to suture these structures either with a running or interrupted suture so as to bring the cut edges in apposition, as is done with the peritoneum, muscle, fat and skin, and this method has given admirable practical results. When it is recalled, however, that the aponeuroses of the transverse muscles are quite thin (about a line in thickness), it becomes evident that the cicatricial union of these edges when merely brought in apposition will be weaker than were the aponeuroses before their division. Impressed by the fact, or what I believe to be a fact, since 1897 it has been my

[1] Read before the Pennsylvania State Medical Society, September 28, 1904.

practice to overlap the fasciæ from one-third to one-half inch as a routine method, and the results secured in the prevention of hernia have been such as to convince me that this method of closing the abdominal wall insures a firmer union and a more certain safeguard against the development of hernia than any other method in use. Since 1897 there have been approximately eleven hundred and fifty wounds in the abdominal wall closed by this method, and of this

Fig. 1.



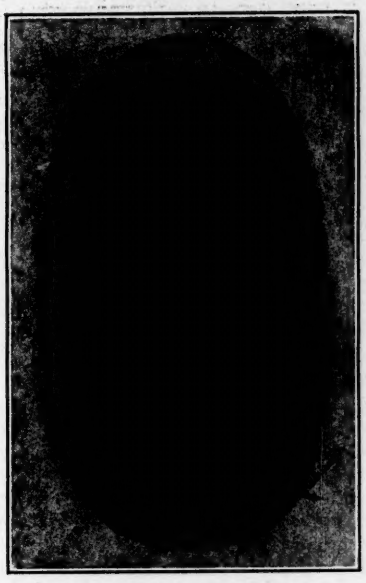
Closing the Abdominal Wound.

number only three cases of hernia are known to have occurred. There has been no case of hernia among the Alexander operations. The method has been used in the closure of the ordinary incisions of the abdominal wall, for the closure of incisions of the inguinal canal when opened to shorten the round ligaments, in all operations for the cure of hernia, whether umbilical, inguinal of ventral (postoperative), and for the cure of diastasis of the recti muscles, demonstrating what I have previously claimed for it ("A New Method of Suturing the Abdominal wall in Celiotomy," *Amer. Jour. Obst.*, 1897, vol. xxxv, No. 4; "Shall Absorbable or Non-absorbable Ligatures and Sutures be employed in Hysterectomy and Salpingo-oophorectomy?" MEDICAL NEWS, October 15, 1898; "Alexander's Operation," *Amer. Gynæc. and Obst. Jour.*, May, 1899; "Remarks on the Influence of Technic upon the Results of Closure of Wounds of the Abdominal Wall," *Boston Med. and Surg. Jour.*, March 8, 1900), that it is of universal application.

I have in preparation a historical paper dealing with the development of the method, showing how different surgeons have used the principle in particular operations, more especially for the cure of inguinal hernia. It is not my intention to dwell upon this phase of the subject at this time, but merely to insist upon the general applicability of the principle, and upon its value in the closure of all wounds of the abdominal wall.

In practice the use of the method is quite simple. The incision in the hypogastrium for operation on the female pelvic organs may be taken as the type. This incision is made by choice through the inner border of the right rectus muscle. In closing the wound, the peritoneum is first closed with a continuous suture of fine cumol catgut. The fat is then dissected from the upper surface of the aponeurosis of the transverse muscles on the left side of the wound from one-third to one-half inch. The aponeurosis upon the right side of the wound is then separated for an equal distance from the rectus mus-

Fig. 2.

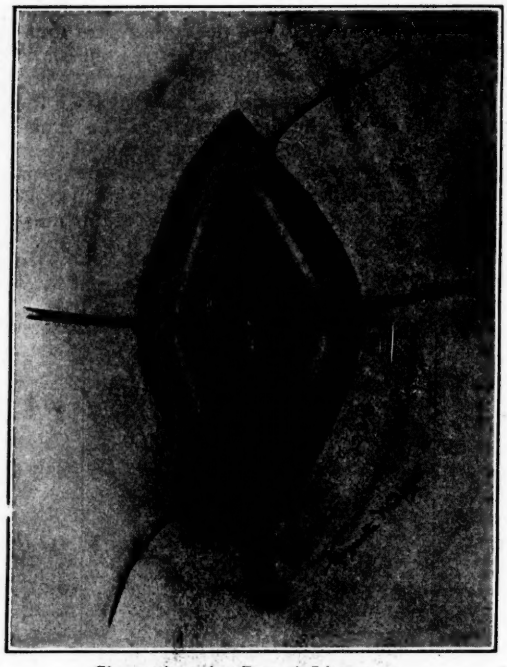


Closure of the wound in the aponeurosis of the oblique muscles. Overlapping the aponeurosis by superimposing that of the right side of the wound upon that of the left, and suturing with a continuous chromicized catgut suture.

cle. The muscles and fasciæ are then sutured by means of a medium weight chromicized catgut suture in the following manner: The suturing is begun at the lower angle of the wound upon the left side. The suture is passed from above downward through the aponeurosis and rectus muscle. Then the separated bundles of the rectus muscle are united with a continuous suture until the upper angle of the wound is

reached, when the suture is passed from below upward through the aponeurosis upon the left side of the wound. The suture is then passed from below upward through the aponeurosis upon the right side of the wound, and an additional suture is taken above this point to fix the suture and take the strain off that part which has brought the muscle in apposition. The aponeurosis is then closed from above downward by catching the aponeurosis upon the left side of the

Fig. 3.

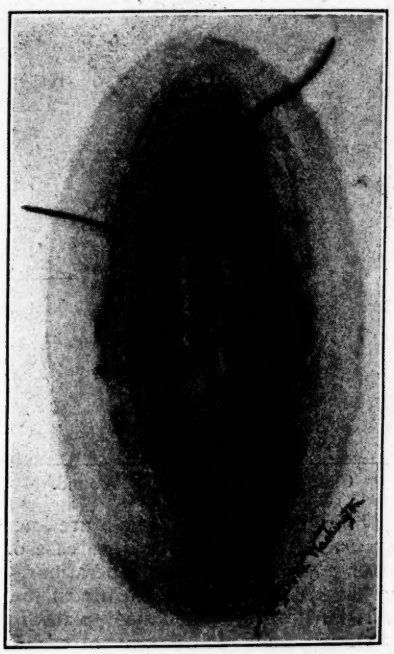


Shortening the Round Ligaments.
Suturing the internal oblique round ligament and Poupart's ligament with chromicized catgut—to fasten the ligament and obliterate the canal.

wound after the manner of the Lembert intestinal suture, and then passing the needle from below upward through the aponeurosis upon the right side of the wound. When this suture is drawn taut, it slides the aponeurosis of the right side of the wound upon that of the left side and holds the two in apposition; the amount of overlapping depending upon the distance from the edge at which the needle is passed through the aponeurosis upon the left side of the wound. The process is repeated until the lower angle is reached, when the two ends of the suture are tied. In long wounds two or more mattress sutures are placed to take tension off the lines of continuous suture. The fat is closed with a continuous suture of fine cumol catgut. The skin is closed with fine cumol catgut suture by the intracuticular method. When median wounds are long, extending near or above the umbilicus, care is taken to unite the posterior aponeurotic sheath of the rectus muscle with the peritoneum. For this purpose frequently a fine chromicized catgut suture is used. This principle is followed also in wounds through the upper portion of the rectus muscle and in wounds of the rectus muscle in operating for appendicitis, in order to secure firm union of the posterior sheath of the rectus.

In operations in the groin, whether for shortening the round ligaments or for the radical cure of inguinal hernia, the internal oblique muscle and any convenient aponeurotic tissue is sutured to Poupart's ligament with chromicized catgut, care being taken to begin the line of suture at or above the upper border of the internal ring. The incision in the aponeurosis of the external oblique

Fig. 4.



Overlapping the aponeurosis of the external oblique in closing the inguinal canal.

is then closed by overlapping the aponeurosis to the outer side of the wound upon that to the inner side of the wound.

University of Pennsylvania.—Mrs. Samuel Dickson has donated $25,000 to the University, half to be devoted to the University Christian Association, the other half to the children's orthopedic ward in the hospital. The new gymnasium of the University was dedicated, December 14, in the presence of numerous alumni and guests. It is said to be the finest of its kind in the country, the cost when completed being $1,000,000. A system of compulsory physical exercise has been instituted under the direction of Dr. R. Tait McKenzie.

THE ASSOCIATION OF CANCER AND TUBERCULOSIS.

BY W. A. BASTEDO, PH.G., M.D.
OF NEW YORK.

LIKE some other dogmas of medical science, it has long been taught that cancer and tuberculosis are mutually antagonistic. Sidney Martin recalls seeing only two cases of the association, and the Fenwicks write: "Most authorities are agreed that the two complaints rarely coexist in the active state." In a fair-sized audience of medical men, McCaskey was unable to find one who had seen the association. On the other hand, Moak maintains that there is no antagonism, and Claude, who made an extensive study of the subject, concluded that either might be favorable to the development of the other.

We had two of these cases at St. Luke's Hospital, New York, and I have to thank Drs. C. F. Collins, Egbert LeFevre and F. C. Wood for permission to use the case histories and post-mortem records. In the subsequent review of reported cases, only those are considered which have been verified histologically or about the correctness of which there seems no reasonable doubt. Many of the older cases have been omitted, as for example, that of Annan of pulmonary phthisis, with carcinomatous ulcers in the bowel; in the absence of histological examination these ulcers may have been tuberculous. A case of Kidd's with tumor of the lung and cavity formation has been claimed as an example of mutual tolerance, though Kidd expressly states that the lung showed no tubercle tissue and no tubercle bacilli. Our cases were:

Case I.—D., male, aged forty years, married, boxmaker, entered hospital November 12, 1899, and died three months later. Family history uncertain. Ten months before admission began to cough, had pain in anterior chest and night-sweats. Since then has had several fair-sized hemoptyses. On admission the physical signs were those of miliary tuberculosis of both lungs, and tubercle bacilli were found in the sputum. On December 26, he complained of pain in back and left mammary region, and a tender prominence was noted over fourth spinous process. It was taken for a kyphos, the mammary pain being attributed to pressure on the nerves, but no pain was elicited on jarring the body or on crowding down the ribs. On January 12, leucocytes 18,200. On February 13 a tumor 5 x 5 cm., rounded elastic in center and hard at periphery, was felt on the liver surface immediately below the ensiform process; to the right of this were felt a few small nodules. He died two days later. The temperature on admission was of the steeple variety, ranging from 98.4° to 103.2° F. The excursion gradually became less, and from December 26, the day on which the lump on the back was first noticed, until he died, fifty days later, the temperature rose above 100 only seven times, and was practially the same in the morning as in the afternoon.

Post mortem.—Right lung.—Dense adhesions, middle and lower lobes completely converted into a large cavity which is nearly filled with thin pus. At the hilus of the lung is a tumor about the size of a lemon, and included in its mass are swollen and pigmented lymphnodes. *Liver.*—On anterior surface left lobe is a large cancer, hard externally and soft in the center; scattered through the liver substance are a number of smaller tumors. *Pancreas.*—In the head is a neoplasm of 2 cm. diameter; midway between head and tail are two smaller nodules. *Stomach.*—One small nodule beneath mucous membrane. Spleen, both kidneys and left suprarenal show metastatic nodules, and there are many such along the whole vertebral column and under the costal pleura along the ribs. There is one large nodule surrounding the fourth spinous process. Intestine and brain normal. The histological report is not accessible.

Case II.—H., male, aged thirty-nine years, mining engineer, born in Sweden, has traveled much in Africa and South America. Entered November 2, 1899, and died two years later. Father died of inflammation of the lungs; no other family history obtained. Patient had had pneumonia, yellow fever, bilious intermittent fever, and several attacks of hemorrhagic malarial fever with bloody urine and stools. Eight months ago he noticed loss of flesh and strength, cough, blood-streaked expectoration and occasional night-sweats. At the Presbyterian Hospital tubercle bacilli were found, and they were also present when he entered St. Luke's, but though often sought, they were not again found during his first stay of eight months in the hospital. His lesion seemed quiescent, the physical signs being those of emphysema and fibrosis in the right lung, with chronic bronchitis and adherent pleura of both sides. The abdominal veins to the right of the umbilicus were notably enlarged; spleen and liver not felt. He had frequent asthmatic attacks. During this stay of eight months he had frequent hemorrhages from the bowels with diarrhea. The blood was mostly dark, and sometimes continued to show itself in the stools for a week or more, the patient becoming very feeble and anemic. Some stools were pure blood. Preceding the hemorrhage there was much pain in the liver region, but it seemed to vanish on the appearance of the blood. He occasionally had cramps in the abdomen, and for one period of several days had either a chill or chilly feeling each day. The blood showed no plasmodium nor noteworthy changes in size or shape of the red cells. Rectal examination was negative though later he developed hemorrhoids. A species of *Anguillula* was found in the mucus which coated his stool when formed, but we were unable to determine whether it was true *Anguillula stercoralis* or one of the numerous species from our ordinary fresh-water streams.

In July, 1900, he left the hospital, weighing 154 pounds and having lost 19 pounds in eight

months. His cough was slight, there was no sputum, and his loss in weight was attributed to his frequent hemorrhages. These were supposed to be due to cirrhotic liver. A year later, September 12, 1901, he returned weighing 120 pounds, and five weeks later died. On admission there were marked signs of tuberculosis in both lungs and many tubercle bacilli in the sputum. Liver and spleen not felt. On October 3, liver just palpable, spleen negative. On October 15, the blunt edge of the liver was felt in the median line two inches above the umbilicus; just to right of midline was a horizontal, hard, ridge-like, oval, tender lump. Spleen negative. He died two days later. From admission until death, five weeks, he had frequent shaking chills and abdominal pain. The diazo test of the urine was repeatedly negative, but on October 10 reacted weakly and on October 17, the day of death, was clearly positive. The blood on October 4 showed 3,392,000 red cells, 45 per cent. of hemoglobin, and of the leucocytes 85 per cent. were polymorphonuclear.

It is noteworthy that, although he had repeated chills and rapid respiration with cough and profuse expectoration, his temperature after October 2, the day before his liver was first felt, never rose above 99° F., and tended to be subnormal. Twice it reached 94°, three times 95°, and once 96° F.

Post-mortem.—Right lung—Dense pleuritic adhesions, two cavities, diffuse consolidation with areas of cheesy degeneration and miliary tubercles throughout. *Left lung*—Pleuritic adhesions, one small antrum and scattered miliary tubercles. *Liver*—Near anterior border right lobe was rounded eminence, 15 x 10 x 6 cm., which on section is a new growth broken down in center and containing clear viscid fluid. Several small tumors are scattered through the enlarged liver. Near the head of the pancreas is a large, very hard lymph-node. There is chronic colitis, and in the region of the sigmoid flexure are many small ulcers about 1 cm. or less in diameter, and some old ulcer cicatrices.

Histological examination.—Lungs—Tuberculous tissue with giant-cells, large areas of cheesy degeneration, some of which are wholly encapsulated; much connective tissue. *Liver*—Infiltration of lobules with carcinoma cells, considerable stroma between lobules. The ducts and blood-vessels are surrounded by cancer cells. The lymph-node from near pancreas is cancerous.

This then would seem to be a case of pulmonary tuberculosis with chronic ulcerative colitis and cancerous cirrhotic liver. It may be that the liver pain and hemorrhages two years before death were due to a simple cirrhosis, or the cancer may have already begun to involve the liver and hepatic vessels. Might not the cancer have developed in a liver already cirrhotic, as it sometimes does in other sclerosed or cicatrized tissues?

Both these cases had extensive tuberculous involvement of the lungs with cavity formation, yet for some time preceding death the temperature was nearly normal and not at all septic or tuberculous and the patients seemed to die as from cancer rather than from tuberculosis.

Of the reported cases of association where *the two processes were active but did not involve the same tissue* the tuberculosis was mostly in the lungs, intestine and lymph-nodes. Rarer were Pott's disease, tuberculous pericarditis, tuberculous meningitis, fistula in ano and tuberculous knee. The site of the cancer was: *Breast* 10 times (Cases of Majer, Clement and Williams 8 cases; *uterus* 10 times (Briggs, Middlesex Hospital, Oppolzer, Williams 7 cases); *cheek* once (Middlesex Hospital); *lower jaw* once (Clement); *upper jaw* once (Middlesex Hospital); *tongue* once (Middlesex Hospital); *pharynx* once (Meunier); *larynx* once (Middlesex Hospital); *esophagus* 13 times (Béhier and Gallard, Middlesex Hospital, Parmentier, Peter, and Porcharies 9 cases); *stomach* 39 times (Béhier, 5 of Boas, Clement, 2 of Fenwick, Gouin, Kollick, 2 of Metterhausen, Middlesex Hospital, Moutard-Martin, 12 of Mouisset, Osler and McCrae, Pauli, Peter, Pierazzini, 8 of Schräder); *liver* 8 times (Béhier, Fenwick, McCaskey, 3 of Mouisset, Picot, Pierazzini, our case No. 1); *pancreas* 3 times (Fenwick, McCaskey, our case No. 2); *intestine* 4 times (Fontoynont, Forster, Lubarsch, Metterhausen).

Pauli had a case of gastric cancer with tuberculous pericarditis. Metterhausen had one of pyloric cancer with tuberculosis of the neighboring lymph-nodes; and one of pyloric cancer with miliary tuberculosis of the liver and mesenteric lymph-nodes. Clement had three cases, (1) cancer of lower jaw with tuberculous cervical lymph-nodes, (2) cancer of right breast with tuberculosis of right axillary lymph-nodes, (3) cancer of stomach, with tuberculosis of liver, lymph-nodes of the gastrohepatic omentum, and axillary lymph-nodes; no trace of cancer was found in any of these lymph-nodes. The Fenwicks relate a case of hemoptysis, recent pleurisy and extensive tuberculosis of right lung, with latent carcinoma of the posterior wall of the stomach and metastases in the liver and the lymph-nodes above the pancreas. Meunier's case died from a tuberculous bronchopneumonia following gastrotomy for inoperable pharyngeal epithelioma. In Béhier and Gallard's case, an esophago-pulmonary communication was formed by ulceration of an esophageal cancer on the one side and the softening of tubercle on the other. Lubarsch had a caseous peribronchitis with six cancerous nodules in the ileum (verified histologically). Fontoynont had a case of tuberculosis caries of the spine with cylindrical epithelioma of the transverse colon. Forster reports pulmonary tuberculosis with cancer of colon, and Porchaire cancer of esophagus with tuberculosis of testicle. Of Williams 130 clinical cases of breast cancer, five had phthisis, two fistula in ano, and one lupus vulgaris. Of his 130 uterine cancers

five had phthisis, one fistula in ano, and one a tuberculous knee. In all these cases the tuberculous lesions were active and existed independently of the carcinomatous.

But there are a number of cases where *both affections attack the same tissue or organ, i.e.,* presumably either process attacks a tissue or organ in which the other has already gained a foothold. Among the cases in which the tuberculosis is the antecedent lesion, the most familiar are those of lupus vulgaris upon which epitheliomata have developed. Fordyce writes: "Carcinomata develop from active lupus or from its scar-tissue so frequently as to indicate more than an accidental relationship." Garres described a lupus of the larynx in which, aside from pronounced tuberculosis, he noted epithelial proliferation into the submucosa, and epithelial pearls. Beausoleil had a similar laryngeal case. In 118 cases of lupus vulgaris, DuBois-Havenith found five epitheliomata. Desbonnets was able to find 90 reported cases of the double lesion, and writes "It does not differ from epithelioma on ordinary skin." Ashihara, however, claims that it does differ from ordinary skin cancer, as it occurs at a comparatively early age, advances rapidly, rarely forms metastases, and often recurs after removal. Anderson writes in Allbutt's System: "It is especially malignant and may show itself at an unusually early age." Of Steinhauser's 83 cases, 24 per cent. were under forty years of age. On the other hand, Desbonnets claims that when the epithelioma appears the lupus has existed on the average thirty years before the epithelioma developed; Hallopeau and Leredde say forty years. C. W. Allen showed a case in which a lupus of twenty-four years had in six months developed an epithelioma involving half the forehead. Stelwagon speaks of a long-standing lupus which became epitheliomatous and ran a rapid and malignant course. The opinion among dermatologists is, therefore, that *lupus* is in some way *favorable to the development of epithelioma.*

According to Ziegler, "in lupus tissues the epithelial cells are in part subjected to altered conditions of nutrition, and in part are displaced, so that they are often lodged among the deeper layers of the tissues." He attributed the epithelial proliferation to ulceration and the formation of cicatrices. In Tillmann's Surgery we find "in lupus the epithelium often grows into the subcutaneous cellular tissue in the form of irregular epithelial proliferation. This explains the fact, perhaps, that persons afflicted with lupus not infrequently develop epithelioma." Crouzon notes that in lupus there exist various benign new growths of irritative origin. Hallopeau and Leredde say, "In old lupus, treated, sclerosed, cicatrized, there tend to form epithelial inclusions." Much more has been written on the subject than we have indicated, and the concurrence of opinion is, that lupus tissue is subject to abnormal epithelial proliferation.

Does the epithelioma merely develop as in scar-tissue, or is the tuberculosis an important factor? Fordyce says: "Growths may arise in indifferent scar-tissue but in lupus the course is more rapid." Leloir believes that a cicatrix is necessary. Lang, Raymond, Mibelli think scar-tissue unnecessary. Bidault suggests an origin in the sebaceous glands. Claude finds that cancer may develop in a cicatrized or in an active lupus, but that even in this latter there may be cicatricial areas. Crouzon says, "It may develop on an ulcerated lupus, but is more frequent where not ulcerated." According to Anderson, "In most cases the cancer first attacks the spreading edge of the lupus, but in a considerable number it originates in the cicatrix." Desbonnets found the development in the cicatricial area only 21 times in 90 cases. Fordyce writes: "In lupus there is nearly always active tuberculous disease, and thus less resistance offered to the epithelial growth," and again: "In lupus a constant irritation is exerted on the epithelial layer, which causes it to undergo hypertrophy, and ultimately may lead to its becoming the seat of a malignant growth."

Cancer certainly has a tendency to develop at the site of any long-standing irritation, as in epithelioma of lip, cancer arising from ulcer of the stomach, and cancer of the uterus in old laceration of the cervix.

It seems certain, then, that scar-tissue and irritative lesions are distinct factors in the production of epithelioma, and it is probable that the combination of scar-tissue with tuberculous disease makes a double preparation for the neoplastic growth, the tuberculous process being both an irritative lesion and one that tends to enfeeble the resistance. Other similar chronic inflammatory conditions of the skin do not rank with lupus in epitheliomatous transformation, for in syphilis there are comparatively few reported cases, and in lupus erythematosus we could find only four cases in the literature. It may be that the very long course and repeated cicatrizations of lupus vulgaris place it in a class by itself, for certainly syphilitic lesions do not persist thirty or forty years. It is well to note also that Roger Williams and also the Fenwicks mention the rarity of a syphilitic history in those patients suffering with cancer.

Of cases other than lupus in which tuberculosis and cancer involve the same tissue or organ, we shall only here and there attempt to indicate which is the prior lesion. The following are the reported cases: Involving the breast 7, uterus 1, larynx 2, lungs 20, esophagus 4, stomach 3, small intestine 3, large intestine 4, rectum 3, liver 1; also 2 cases of cancer only of the breast with the double lesion in the axillary lymph-nodes, and Ribbert's eleven cases in which he failed to find tubercle bacilli, and made his diagnosis mainly on the presence of giant-cells. These cases were: 6 of lip, 1 each of mouth, tongue, gum, eyelid and penis; he claims to have excluded syphilis, leprosy, actinomyces, animal

parasites and foreign bodies as the cause of the giant-cells.[1]

Of special interest among these cases might be mentioned: Haug's case of tuberculous nodules on the lobe of the ear, among which epithelioma developed; Moak's five cases: one, the primary cancer in the prostate, and the tuberculosis in the lungs, and there were metastatic combinations of the two lesions in lungs, bronchial lymph-nodes, adrenal, liver and spleen; two, adenocarcinoma of sigmoid flexure, in which a tuberculous process was working its way between the intestinal wall and the fungoid edge of the neoplasm undermining the latter; the interior of the cancer alveoli were necrotic and cheesy and contained tubercle bacilli; there was combined metastasis in liver and kidney; three, recurrent carcinoma with tuberculosis, apparently primary, of the mammary gland, with the combined lesion also in the axilla; four and five, both cases of uncomplicated cancer of the breast with the double lesion in the axillary lymph-nodes. Crawford observed a scirrhous cancer in a chronic interstitial mastitis, which on account of caseating areas was supposed to be tuberculous, though neither giant-cells nor tubercle bacilli were found; in the axilla were a large caseating mass of tuberculous lymph-nodes, two single cancerous lymph-nodes, and between axilla and breast some lymph-nodes with tuberculosis and cancer side by side. Warthin found the combined lesion in the breast in two instances; in one of the cases the axillary lymph-nodes were examined and showed the double lesion. Kallenberger reports a woman who had pulmonary tuberculosis; the breast became inflamed and was found to contain tuberculous tissue surrounding, but sharply delimited, from, nests of cancer cells. Pilliet and Piatot briefly record a carcinoma of the breast in which was a fistula 6 cm. long; section showed both tuberculosis and cancer. From the larynx (vocal cord) Zenker removed an epithelioma, in the center and edges of which were tuberculous foci containing a few tubercle bacilli. Crone and Baumgarten extirpated the larynx for recurrent epithelioma, and cancer and tuberculosis were found intimately associated in this and in some large neck glands adjacent to a cutaneous cancer metastasis.

In the lungs, Friedländer, Menétrier, Schwalbe, and Wolf (2 cases) found cancer arising from the wall of a tuberculous cavity. All were flat-celled epitheliomata seated on sclerotic tissue, and supposedly arising from the alveolar epithelium. In studying primary cancer of the lung, Wolf observed the association in 13 cases, among which worthy of note are: One case with miliary carcinosis intermingled with miliary tuberculosis, one case with miliary carcinosis and a tuberculosis which was not miliary, and two cases of cancer in a tuberculous cavity. Lubarsch reports two cases, a primary lung cancer in pulmonary tuberculosis and metastatic cancer in fresh areas of tuberculous infiltration in the lung. Barth observed a tuberculous bronchopneumonia in a part of the lung whose main bronchus was obliterated by a primary cancer. Olmer reports tuberculosis of both lungs, liver and spleen, and in one lung a neoplasm which was either a tubular epithelial cancer or an alveolar sarcoma.

In the esophagus, Zenker discovered an epithelioma, the stroma of which and the adjacent esophageal tissue were tuberculous and showed tubercle bacilli. Cordua also reports a cancer of the esophagus invaded by Koch's bacillus. Pepper and Edsall had a case of tuberculous occlusion of the esophagus with partial cancerous infiltration. Weyeneth found cancer of the esophagus invaded by tuberculosis in a case with tuberculous cavities in the lungs. Béthier and Gallard's esophago-pulmonary fistula (see above) might also be mentioned here.

In the alimentary tract, Claude had a case with tuberculosis in lungs and large intestine, and a tumor of the stomach, of which about one-third had ulcerated away. The tumor was adenomatous in some parts and carcinomatous in others. Dense and caseating tubercle tissue had cut off the tumor's nutrition, with resulting necrosis, but nowhere did the tubercle tissue invade the substance of the cancer, though in immediate contact with the cancer cells. There were tubercle bacilli, giant-cells, and round-cell infiltration. According to Claude, " this was a tuberculous infection engrafted on a growing epithelioma and causing its partial destruction, the cancer having arisen from polypoid adenomata." Friedländer found tubercle tissue in a gastric cancer which had developed on the cicatrix of a simple ulcer. Lubarsch had a case with tuberculosis of lungs and mesenteric lymph-nodes, and tuberculous ulcers of trachea, ileum, ascending colon and rectum—with a carcinoma of the ileum producing stenosis. (The case of Jackson, 1848, involving the testicle, is not verified.)

From these cases it is evident that *not only may cancer and tuberculosis attack the same person,* but that *their lesions may lie side by side, or may intermingle, or that the one may develop in a tissue already the stronghold of the other.* Tuberculosis implies chronic inflammation and enfeebling of tissue-resistance; but that the malnutrition of tuberculosis favors cancerous growth cannot be postulated, for cancers develop in those of good nutrition as well as in the emaciated. On the other hand cancer may, by its effect on nutrition, favor tuberculous infection, or by changing the character of the epithelium, or by ulceration, may permit the entrance of the tuberculous germs. Or tuberculosis may develop in the neighborhood of a can-

1 These cases were reported as follows: *Breast*—Crawford, Kalenberger Koster, Moak, Pilliet and Piatot, Warthin (2); *Uterus*—von Franqué; *Larynx*—Crone and Baumgarten, Zenker; *Lungs*—Barth, Dittrich, Friedländer, Friedreich, Lubarsch (2), Menétrier, Olmer, Schwalbe, Wolf (2); *Esophagus*—Béhier and Gallard, Cordua, Pepper and Edsall, Weyeneth, Zenker; *Stomach*—Claude, Friedländer, Loewenstein; *Small Intestine*—Lubarsch, Naegeli, Weyeneth; *Colon*—Dalton, Metterhausen, Moak, Naegeli; *Rectum*—Baumgarten, Manjkowski, Naegeli; *Liver*—Frerichs; *Lobe of Ear*—Haug; *Axillary Lymph Nodes*—Crawford, Moak (2).

cer, the resistance of the tissue being lowered by the influence of the neoplasm in the vicinity; or a latent tuberculosis in a lymph-node may become active when a cancer arises near by. The cancer may also act mechanically, as when it obstructs a bronchus or vessel, and tuberculosis appears in the stagnated and congested area thus produced.

Cancer and tuberculosis are certainly not antagonistic. Indeed they might more often involve the same structure, were it not that, as suggested by Rokitansky, 1838, the parts usually attacked by cancer are not those frequently invaded by tuberculosis. Williams, in 7,297 cases of primary cancer, found 80 per cent. located in superior maxilla, lower lip, mouth, tongue, esophagus, stomach, uterus, prostate, bladder, external genitals and breast, regions where tuberculosis is not common. In Reiche's 11,930 cancer cases the site of the neoplasm in 79 per cent. was esophagus, stomach, rectum, liver, gall-bladder, pancreas, bladder, uterus and breast. On the other hand, tuberculosis attacks mostly the lungs, serous membranes and small intestines, which are seldom the seat of cancer.

Aside from their occurrence in the same tissue we might also expect the two lesions in the same person more commonly, were it not that, as shown by Cruveilhier, 1828, the period of life for the greatest tuberculous activity is that at which cancer is comparatively rare, while active tuberculosis is less common at the later period of life, when cancer is in the ascendency. Muirhead states that in Great Britain the average age at death from cancer is about sixty years. Of 11,930 deaths from cancer Reiche found that 73.44 per cent. took place after fifty. On the other hand, of 10,649 deaths from pulmonary tuberculosis, Barié ascertained that only 17.8 per cent. occurred after fifty, and in 92,141 deaths at the age of sixty or over, only 2.3 per cent. were due to tuberculosis. Of. Bariés 10,649 deaths from pulmonary tuberculosis, the semi-decades in which ten per cent. or more of the deaths took place were those between the ages of twenty and forty-five years, so these years may be taken as the most common ones for death by tuberculosis; at this period of life only 16.14 per cent. of all the deaths from cancer occurred. The semi-decades in which ten per cent. or more of Reiche's 11,930 deaths from cancer took place were those from the ages forty-five to seventy-five years, so these may be taken as the common ones for cancer; at this period of life 26.6 per cent. of the tuberculous deaths occurred. It is interesting, too, to note that the highest number of tuberculous deaths in any semi-decade occurred at the ages thirty to thirty-four, viz., 15 per cent., and during this period only 2.36 per cent. of the cancer deaths took place; also that the highest number of cancer deaths, 14.2 per cent., occurred at the ages sixty-one to sixty-five, and at these ages only 3.35 per cent. of the deaths from tuberculosis took place. The failure of the two lesions to be more frequently associated may, therefore, be largely accounted for in this way.

Tuberculosis, presumably, is fatal to large numbers in early life who might, had they lived longer, have developed cancer. It is evident, too, that if in early life tuberculosis develops and is conquered, a healed or latent process will be found at autopsy. We naturally, therefore, expect to find healed tuberculosis more frequently at autopsies on older people than at autopsies on the young. In Reiche's 11,930 cancer cases, the greatest proportion of cancer deaths to all deaths at any given age of life was 7.3 per cent., while in 1,196 post-mortems in which healed tuberculosis lesions were found (Fowler, Heitler, Lubarsch, Martin, Zahn) 20.4 per cent. had cancer. Thus the prevalence of cancer is less in the community in general, even at the cancer age, than in those with healed tuberculosis. Such facts have led Fowler and Godlee to say, "It is remarkable that the tissues of an individual who ultimately succumbs to a disease of the type of cancer should have had at one time resisting power sufficient to overcome an established tuberculosis."

The following statistics may be of interest: In 14,415 post-mortems following death from all causes (Dürck, Lubarsch, Osler, Zahn) tuberculosis active or healed was found in 35.5 per cent. In 1,955 post-mortems for cancer (Boas, Lebert, Loeb, Lubarsch, Osler and McCrae, Rapok, Sandor-Miclesco, Schräder, Williams) only 15.3 per cent. showed tuberculosis, active or healed. In 1,014 post-mortems for cancer (Boas, Kelynack, Lebert, Lubarsch, Mouisset, Osler and McCrae, Williams) active tuberculosis was found in 5.5 per cent., and in 672 post-mortems for cancer (Boas, Lubarsch, Osler and McCrae, Williams) healed tuberculosis was found in 10.87 per cent. The tuberculosis post-mortems of course include many cases of young age, when cancer would be very rare.

Clinically, in 260 cases of breast and uterine cancer, Williams found 5.8 per cent. of active tuberculosis; and in 75 women with non-cancerous tumors, he found 5.3 per cent of active tuberculosis. From these statistics it would seem that active tuberculosis occurs in about 5½ per cent. of all cases that die of cancer, about the normal frequency for active tuberculosis in all persons at the cancer age. But to draw any positive conclusions from post-mortem statistics it would be necessary to compare the percentage of cancer cases in the tuberculous at any given age with the occurrence of cancer in the non-tuberculous at the same age. Unfortunately, autopsy statistics of cases in which both diseases occur fail to state the ages of the subjects. From our study of cases so far, however, we may infer, we believe, that in all probability the two diseases neither antagonize nor favor each other in any specific manner. It seems probable that tuberculosis does not favor the development of cancer any less or any more than other long-standing lesions involving chronic irritation or de-

pressed vitality of the tissues; and that cancer does not favor the development of tuberculosis any less or any more than other conditions which markedly influence nutrition and tissue-vitality.

The following cases of antagonism are too few to influence our conclusions. In our two cases the death was rather from cancer than from tuberculosis, and when the cancer became active. the regular tuberculosis temperature subsided. Picot remarks of a case of pulmonary tuberculosis with cancer of the liver "From day to day the patient became worse, in spite of the *absence of fever.*" In McCaskey's case there was not at any time either fever or accelerated pulse.

The Fenwicks write, "In one case which we were able to watch through its course, a rapid tuberculosis of the lungs and intestine came suddenly to a halt when symptoms of malignant disease of stomach and pancreas made their appearance. After death, at the end of eight months, not only was the pulmonary lesion found completely quiescent, but more than thirty ulcers in the bowel had either partly or completely cicatrized."

The recession of cancer on the outbreak of pulmonary tuberculosis is reported by Paget; and Sigg describes the dwindling of a recurrent carcinoma of breast and axilla as soon as active pulmonary tuberculosis made its appearance. In view of the fact that so many cases of association are found in the literature, these very few cases of apparent antagonism must not be given undue weight, though certainly lending support to Martin's remark that cancer does not antagonize the first infection of tuberculosis, but tends to retard its progress.

The statement sometimes made that cancer occurs at an earlier age in those with tuberculosis is not borne out by Osler's statistics of pulmonary tuberculosis; in our discussion above of lupus we have noted opposing opinions in this regard.

Heredity.—Besides the cases of actual association, the seeming hereditary relation between the two diseases is of interest. Burdel, citing a case in which the mother had cancer, and the patient, a sister and two children had tuberculosis, states that "tuberculosis of the child appears to be favored by cancer of the parents." Schley's patient, with primary tuberculosis of the breast, had a sister with cancer of the uterus. The Fenwicks say "Of our gastric cancer cases 26 per cent. possessed one or more near relations who had succumbed to phthisis . . . It is also interesting to observe that the progenitors of cancerous families are often themselves the sole survivors of tuberculous families; and that, while the cancerous proclivity shows itself most in the elder children, the younger ones not infrequently succumb to tuberculosis. In other instances cancer and tuberculosis alternate in successive generations." Williams writes "Pulmonary tuberculosis is by far the most prevalent disease among the relatives of cancerous persons, who are very much more prone to it than the rest of the community. . . . Indeed the liability (of the offspring of the cancerous) to pulmonary tuberculosis is so considerable as to even equal that of the (offspring of the) tuberculous themselves. . . . Hence those who survive the peculiar kind of degeneracy associated with the tuberculous predisposition are at a later period of life especially prone to cancer." Williams found a family history of tuberculosis in 10 to 25 per cent. of the general community, while in his 260 cases of uterine and breast cancer he obtained a family history of tuberculosis in 50 per cent. From various statistics which we have gathered, we find a family history of tuberculosis in the tuberculous in 48 to 60 per cent., a family history of tuberculosis in the cancerous in 25 to 50 per cent., and a family history of tuberculosis in the general community in only 10 to 28 per cent. We have been unable to obtain adequate statistics in regard to a family history of cancer in the tuberculous. In Osler and McCrae's 150 cases of cancer of the stomach at Johns Hopkins Hospital, 25.3 per cent. gave a family history of tuberculosis, exactly the same proportion as in 150 control non-cancerous cases chosen at random.

Before concluding I should like to refer especially, as of clinical importance, to those cases in which tuberculous lymph-nodes have been found in the neighborhood of a cancer. Metterhausen had two cases of pyloric cancer with tuberculosis of the neighboring glands. Clement had three cases: cancer of lower jaw with tuberculous cervical glands, cancer of right breast with tuberculosis of the right axillary glands, and cancer of the stomach with tuberculosis of the omental and axillary glands. Hildebrand recalls cases of amputation of the breast for carcinoma with tuberculous axillary glands, and of cancer of the lip with tuberculous glands in the neck. The Fenwicks write, "Not a few examples of malignant disease of the stomach present old tuberculous lesions in the glands of the left supraclavicular fossa."

Our conclusions may be stated as follows:

1. Cancer and tuberculosis not infrequently occur together in an active state, and may be intimately associated in the same tissue.

2. There is probably neither specific favoritism nor specific antagonism between the two types of disease.

3. There are a few reported cases in which one of the affections seems to have exerted a modifying influence on the course of the other.

4. Lupus favors the development of epithelioma.

5. Cancer is more common among those with latent tuberculosis than among others at the cancer period of life.

6. The common age for cancer is not the common age for active tuberculosis (Cruveilhier, 1828).

7. The common sites of cancerous involve-

ment are mostly not those of tuberculous involvement and vice versa (Rokitansky, 1838).

8. A family history of tuberculosis is more frequent in the cancerous than in the general community, and there may be some hereditary relation between the two.

9. A latent tuberculous process in a lymph-node may become active when a cancer develops in the neighborhood.

10. Lymph-node enlargement in the vicinity of a cancer is not always cancerous (Claude, 1899), and may be solely tuberculous.

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THE MININ RAY.

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THE recent death of Niels Finsen has removed from scientific medicine one to whom we owe a great debt. It is given to but very few in each generation to accomplish as much good for mankind as did this noble and modest worker in photo- and electrotherapy.

All the more does it become the duty of each individual to add his contribution, however humble, to the scanty knowledge we at present possess of the therapeutic value of light and electricity.

It has been my fortune for the past two years to have done considerable work with the so-called Minin ray, as brought to this country and put on the market by a western house. The apparatus consists of a series of incandescent lamps of about 16, 32 and 50 candle-power, together with suitable reflectors, cords and stand. The glass bulbs are made of a peculiar, very dark blue glass, and the light transmitted apparently has lost much of its original heat, as experiments have demonstrated. That the transmitted rays are not ultra-violet, as some claim, is proved by the fact that Willemite does not fluoresce when exposed to them. Just what rays do pass through this blue glass, remains to be shown by further experiment, but the results obtained are so varied and striking that I have collected a number of cases from my own practice, in the hope that others may be induced to try the Minin ray with the same gratifying results to themselves and their patients.

Discarding the stand furnished with the lamps, I attach the same by means of a six-foot cord to any 110-volt lighting current, either direct or alternating, allowing the patient or nurse to hold the reflector six to eight inches from the part to be "rayed." The only caution needed is not to allow the glass bulb to touch the skin. The bulb heats so quickly and retains the heat to such an extent that a blister would immediately follow contact with the skin. Burns of the skin from long-continued use of the rays have not resulted in my experience, although a marked reddening of the surface rayed is immediately apparent.

The application of the light lasts from ten to twenty minutes, according to the part to be acted upon and the result sought. In no case have I found any unpleasant reaction resulting from the use of the Minin rays, and in almost all cases there have been positive favorable results.

Case I. Old Suppurating Burn.—J. C., forty-five years old, laborer. Had burn of second degree, covering whole back of right hand and fingers. When first seen it had been neglected, and was suppurating and covered with filthy crusts. Patient had not slept for two nights. Cleaned with an antiseptic and Minin ray applied for fifteen minutes. Pain was relieved at once. Dry dressing applied. On following two days

same treatment was applied, and on fifth day the wound was healed. Following the first treatment patient was free from pain. No contraction of skin or muscle resulted.

Case II.—F. C., Twelve years old. While he was setting off fireworks a bomb exploded prematurely in patient's face, burning him from chin to hair and from ear to ear. When first seen, within half hour after the explosion, the patient was screaming with pain. His face was blackened and swollen, his eyes closed and his eyebrows, eyelashes and hair over forehead burned to a crisp.

The face was rayed for thirty minutes, moving the lamp from side to side so as to illuminate the whole burned area. After ten minutes of treatment the pain subsided, and before the end patient had gone to sleep. The treatment was repeated every four hours for four days, then every six hours for two days and then twice in twenty-four hours for three days. On the eighth day the boy was out, going about as usual, with only slight discoloration of skin. No other treatment was used, except bathing the eyes frequently with warm milk.

Case III. Ivy Poisoning.—A. L., seventeen years old. Severe case involving whole face and neck. Usual remedies had done no good. Applied rays to affected area every three hours during night (there being no electric light available during the day). Pain and itching were relieved at once and patient enabled to sleep. Four nights of treatment sufficed to cure.

Case IV.—R. S., twenty-five years old. Patient especially susceptible to ivy poisoning, which usually lasted fourteen to twenty-one days. Rays applied at once to small area involved on left side of face. Relief was immediate, lasting several hours, when renewed, raying again relieved and for a longer period. Treatments lasted for fifteen to twenty minutes, and were repated four to five times in twenty-four hours. Irritation did not spread beyond area first involved, and patient was cured in less than a week. I had an exceptional chance to observe this case, as it occurred in my own house.

Case V. Tracheitis.—J. M., fifteen years old. This patient had a tuberculous family history, and was herself a hemophiliac. She was of extremely nervous temperament, and even a slight cold would set up a high temperature with paroxysms of violent coughing, and severe pain at the root of the neck, apparently between the larynx and the bifurcation of the trachea. A previous attack in which I attended her lasted ten days acutely, and the irritating cough and pain continued for three weeks, even after a change of climate. All sorts of internal medication, as well as inhalations and external applications, failed to give relief in previous attacks. Within six hours after the commencement of the last attack, due to "catching cold," the Minin rays were applied from a 32-c.p. lamp held twelve inches from the neck for fifteen minutes at a time. Treatment was repeated every four to six hours, and no medication of any sort given. The first treatment relieved the pain, and within twenty-four hours the cough had ceased to irritate. The nervous symptoms, accompanied by rise of temperature, which had always followed the beginning of such attacks, did not appear, and the patient was up and about on the third day. In this case the action of the Minin ray evidently penetrated to the tissues of the trachea and larynx, allaying a sharp irritation of the mucous membrane. This same action is shown even more forcibly in the next.

Case VI.—Mrs. R. T., thirty-six years old. Suffering from phthisis and tuberculous laryngitis. Patient was sent to me by a throat specialist with request to touch the vocal cords with a strong solution of nitrate of silver several times a week. This treatment naturally caused much pain and choking and a persistent metallic taste. It occurred to me to try the effect of the Minin rays applied to the neck before treatment with the nitrate of silver, with the result that the patient no longer felt the pain of the treatment, the choking was reduced to a minimum and the metallic after-taste disappeared.

These cases are but a very few of a large number of varying conditions in which I have been using Minin rays, and I have no hesitation in asserting that we have in this light a safe and reliable means of treating many inflammatory conditions, including joint affections, which have hitherto given the general practitioner much thought and worry.

TROPICAL MALARIA.[1]

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SINCE our acquisition of new territory situated within the tropics it has become particularly incumbent upon Northern physicians to give renewed study to the aggravated forms which diseases so often assume in hot climates. It may be anticipated that we shall be brought into more frequent contact with such disorders than we have in the past. The physicians of our Southern and Southwestern States have had much more experience than we in this field. Yellow fever and cholera have occasionally invaded the North, but these visitations are infrequent and most of us in this part of the country have never witnessed an epidemic of those diseases. Sporadic cases of leprosy occur from time to time. I have met with a number in Philadelphia and have reported several in the medical journals. Beriberi has been sometimes brought to our shores by ships from tropical ports. In the Medico-Chirurgical Hospital we have had sailors suffering from that disease, and at our Quarantine Sta-

[1] An address delivered before the Medical Association of the Greater City of New York, October 10, 1904.

tion eleven cases of beriberi were observed by Dr. Judson Daland among a crew of Lascars, certain of which cases showed the presence of the *Plasmodium malariæ*.

Teachers in the North must lay stress upon the subject of tropical medicine, for it may be surmised that, in addition to those who enter the National Services, many will seek civil practice in our new possessions.

During and immediately after our short war with Spain I had an opportunity of observing the more severe forms which malaria exhibits in the tropics. Among the soldiers who were brought to the Medico-Chirurgical Hospital from Cuba, Porto Rico and the camps of this country, were 53 cases of malaria. Many of these were of the ordinary intermittent type with which we are all familiar. A certain number, however, presented a more profound and—in my experience—unusual intoxication, and it is of these latter that I wish to speak, in accordance with the courteous invitation of the president and secretary of your society.

I employ the term "tropical malaria" as indicative of the behavior of the *Plasmodium* in cases occurring in the tropics. The clinical symptoms, accordingly, manifest an intensity which is seldom or never displayed in the temperate zone. The parasite itself is profoundly modified in hot countries. Malignant malarial parasites are particularly confined to the tropical and subtropical regions. With the recognition of the *Plasmodium* and the knowledge of its transmission by the mosquito our conceptions of malarial infection in its different forms have been rendered much more exact. We have, moreover gained an immensely important advantage, in the possession of absolute scientific tests, upon which we may depend in diagnosis. As regards the *Plasmodium* itself, we have learned much concerning its different phases or cycles, within and external to the human body. The parasite propagates itself in the body of the mosquito, is transferred to man and undergoes, in the plasma and red corpuscles, a series of transformations which end in sporulation. It has been discovered that only certain species of the genus *Anopheles* serve as hosts of the malarial parasite. The *Plasmodium* itself exhibits certain differences as regards form, rate of evolution, and the clinical forms of disease to which it gives rise. This classification simplifies considerably the differentiation of the varieties of malaria as it occurs in temperate or tropical climes.

It is possible to distinguish under the microscope many forms of the hematozoa; the flagellate body, the ordinary intra- and extracorpuscular body and the ring form, as well as the crescentic. One of these forms completes its cycle in forty-eight hours and one in seventy-two hours.

The study of the *Plasmodium* in its various phases has enabled us to revise the classification based upon purely clinical phenomena. The malarial paroxysm coincides with the sporulation of a group of the parasites contained in the red blood corpuscles. If *Plasmodium* is present in various stages of development the discharge of the spores and toxins is irregular; the typical periodicity of symptoms is disturbed, the fever assumes a remittent or continuous type, and the temperature charts exhibit a less distinctive zigzag outline. This was illustrated in the more severe cases of which I am about to speak.

A proportion of my cases were of that type which have generally been known as bilious remittent, the estivo-autumnal, or summer-autumn, fever of the Italians.

Our most severe cases were among the soldiers who had served in the field at Santiago and in Porto Rico. Most of the cases were distinguished by severity of symptoms and the irregular course of the fever. All were accompanied and followed by extreme prostration. According to the histories which we obtained, they began more or less insidiously with headache, which was in some instances excessive, backache, general weakness, anorexia; in some cases there had been pain in the neck or all over the body or general soreness; one patient suffered from a dull feeling at the lower border of the left ribs and a pain in the lumbar region. In a number of instances vertigo occurred. In one case it is noted that the eyes suddenly became very painful. Some patients complained of pain in the bones. In some of the men fever had supervened without any well-marked chill. In other histories the chill figures as a prominent feature. One man suffered from a prolonged chill every day, accompanied by fever of the remittent type. Sometimes, but not always, the fever was followed by profuse sweats. The man was exceeding debilitated. One interesting case displayed a chill every morning and every afternoon for two weeks; each chill was succeeded by fever and sweats. The temperature charts departed widely from that of ordinary or benign malaria. In another case the initial chill is described as severe; it had been preceded by intense pain in the head and back, and returned every day for three days. One patient stated that his attack began abruptly with a chill, which was repeated upon the following day. Severe chills were experienced by a number of patients. One man's illness began with a rigor which lasted for half an hour, followed by fever and profuse sweating. His headache was violent. Chills recurred every other day. Upon one occasion the chill lasted as long as two hours. Another patient had a chill every other day lasting an hour and a half, followed by high temperature. One man went to sleep at night with a violent headache and awoke to find himself in a cold sweat, which was followed by a chill and fever, a reversal of the ordinary succession. He was extremely weak. Another patient had a violent chill after having been ill for four days, and subsequently suffered from a repetition of chills every day for twelve days. In many of the cases there was such a blending

of succeeding paroxysms with the febrile rise and fall that the record approached that of a continued fever.

Several cases were accompanied by acute bronchitis. There was cough, with mucoid sputum and pain in the chest; one patient suffered from acute bronchitis two or three days before he was attacked by pain in the head and burning sensations in the eyes, after which chill, fever and sweat developed; the bronchitis continued throughout the case. The history of another man speaks of "a very bad cough." Gastro-intestinal symptoms were marked in a considerable proportion of the patients. All experienced loss of appetite and loathing of food. As a rule, the tongue was heavily coated. Nausea and vomiting were common, and some of the men complained of abdominal pain. Of one patient it is written that he was early attacked with violent cramps, which lasted for four days, being accompanied by fever, nausea and dysentery. The diagnosis of this and three other cases reads: malaria with dysentery. A fifth case is recorded as malaria and diarrhea. Of one man it is registered: abdomen tender but not tympanic. This patient had a severe attack of vomiting. Pain in the stomach, vomiting and diarrhea were the prominent features of another case. In other histories also mention is made of diarrhea. Diarrhea in the begining of the case, followed by constipation, was observed in a number of the patients. Nausea and prostration were so marked in one instance that we administered champagne in cracked ice. The gastric symptoms (vomiting and pain) were so prominent in one patient that the history is headed: Malaria and gastritis. In some attacks the bowels were unaffected; in others constipation was the rule. The spleen was more or less enlarged in most of the men. In some there was tenderness over the spleen without much increase of size.

In several patients the color of the skin was noteworthy. The discoloration varied from a sallow hue to the deepest jaundice and testified to the alteration of the hemoglobin by the malarial parasite and its liberation from the red cells. Many of the cases exemplified the great tendency to recurrence in this variety of malarial fever. After a defervescence of ten days to two weeks the symptoms would return and run a similar course. In many cases there was a decided diminution in the secretion of urine. It was high-colored, contained urea, uric acid, bile-pigment, and, in some instances, albumin. In one case there was hematuria.

Two cases were especially remarkable. The deep yellow shade of the whole body, the vomiting and diarrhea were highly suggestive of yellow fever. There was no genuine black vomit, although the material ejected from the stomach was dark in color. These men lay in a state of stupor attended by low delirium.

Such is a brief analysis of the chief features of the malarial cases from the West Indies. Brought into the hospital intermingled with five times as many typhoid fever patients, it was necessary to be extremely careful in framing the diagnosis and distinguishing between the two classes of patients. The tracings of the chart were not very dissimilar to those of typhoid fever, and the occurrence of abnormal tenderness with diarrhea and extreme debility might cause hesitation. So suggestive was the analogy in some instances that the clinical notes particularly specify the points of difference; of one patient it is said: no nose-bleed; no rose-colored spots. Of others we read: no rose-colored spots upon the abdomen; no tympanitis; no bronchitis; no tenderness or gurgling in the right iliac fossa, and absence of the Widal reaction. Fortunately for accuracy we are no longer dependent solely upon clinical observation. The presence, on the one hand, of the *Bacillus typhosus* and the evidence of Widal's test, and on the other the detection of the malarial parasite, sufficed to settle the diagnosis respectively for typhoid fever or malaria. The cases in which the skin was so dark in hue were distinguished from yellow fever by the continuation of high temperature (that of yellow fever runs a shorter course); and, above all, by the presence of the *Plasmodium malariæ* in the blood. Judging from the cases which

Chart of Case I.

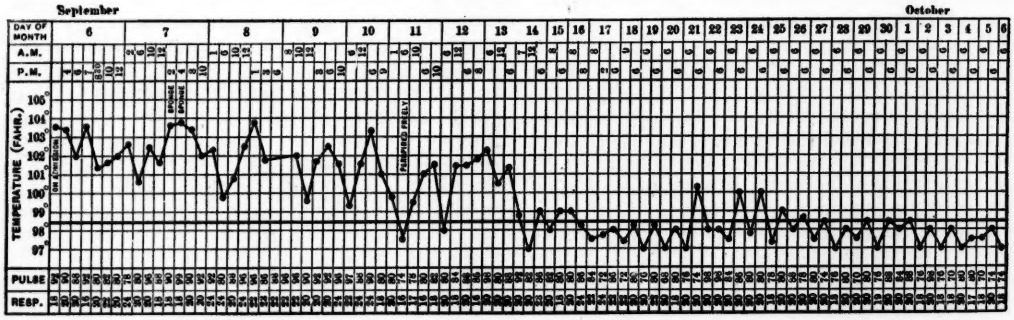
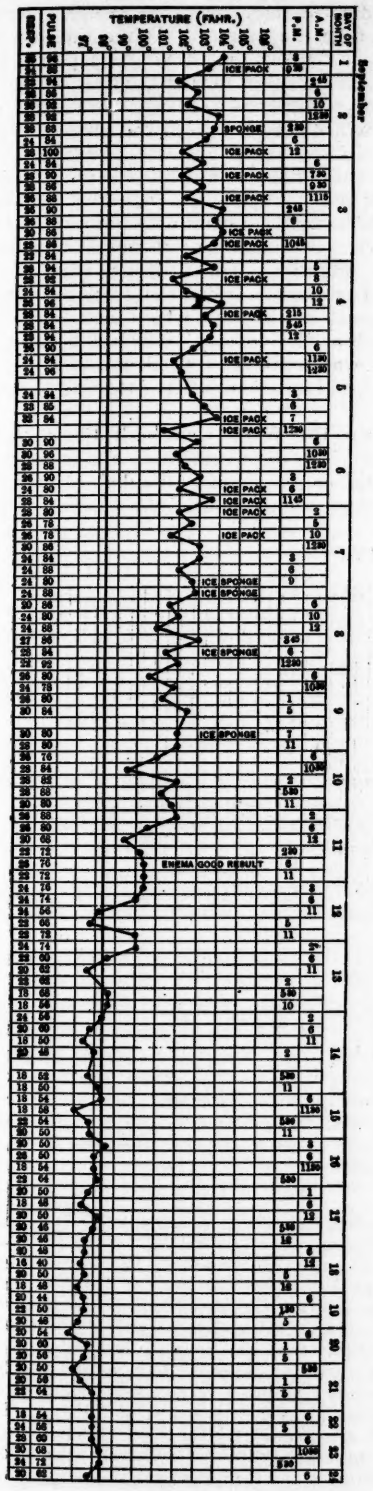


Chart of Case II.



came to us, I should infer that prior to Laveran's discovery in 1880 many cases of severe malarial intoxication were confused with yellow fever. Both diseases, moreover, prevail at the same season of the year. Furthermore, yellowness of the skin is sometimes absent in yellow fever. In yellow fever the pulse is more slow than in malaria, albuminuria is almost invariable, the face is flushed, the eyes brilliant, and the mind is usually clear.

Again, purely from clinical study, it would be difficult, if not impossible, to distinguish between some of our malarial cases and typhoid fever. In both there was diarrhea or constipation; in both there was enlargement or tenderness of the spleen; there was great prostration of nervous and muscular strength and there was delirium in both classes of cases. Our severe malarial cases had contracted the disease in the tropics, they were brought to us after having suffered from the intoxication for two weeks or more, some were suffering from a relapse, and all were in a condition of extreme debility. As regards the differentiation of severe malaria and typhoid fever, we are told that until recent years typhoid in the East Indies was generally regarded and treated as malarial fever. Thus this comprehensive type of intoxication—malaria—may simulate yellow fever at one extremity of its field while at the other it bears a resemblance to typhoid fever. It is a happy circumstance, indeed, that in two out of three distinct diseases we are in possession of absolute and scientific tests which certify to the differential diagnosis.

Case I.—P. V., male, aged twenty-seven years; admitted to Medico-Chirurgical Hospital August 6, 1898, discharged, cured, October 16, 1898. Diagnosis malaria (remittent).

Case II.—J. W. S., male, aged twenty-three years, admitted to Medico-Chirurgical Hospital September 1, 1898; discharged September 24, 1898. Diagnosis, typhoid fever.

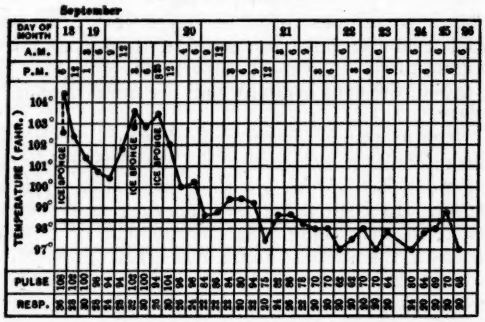
Case III.—A. W., male, aged nineteen years; admitted to Medico-Chirurgical Hospital September 18, 1898; discharged September 26, 1898.

Case IV.—W. M., male, aged thirty-five years; admitted to Medico-Chirurgical Hospital, November 4, 1898; discharged December 15, 1898.

In the treatment of these severe cases of tropical malaria quinine was our main reliance. In our worst cases, however, the stomach was so irritable and vomiting was so incessant that the drug was not retained when given by mouth. Under such conditions I made use of suppositories containing quinine. In cases accompanied by constipation small repeated doses of calomel placed upon the tongue produced movement of the bowels and at the same time allayed the gastric irritability. The rectum, when not clogged by feces, is a good absorbing surface. In cases of gastric ulcer, for instance, life has been sustained for weeks and months entirely upon nutritive enemas. Injections containing quinine in the proportion of ten grains to the

ounce of water with the addition of a few drops of acid to promote solution, have likewise been employed in similar cases. Suppositories, however, can be put in place with less disturbance of the patient, and we know by practical proof that their active ingredient is absorbed. They produce their constitutional or physiological effects.

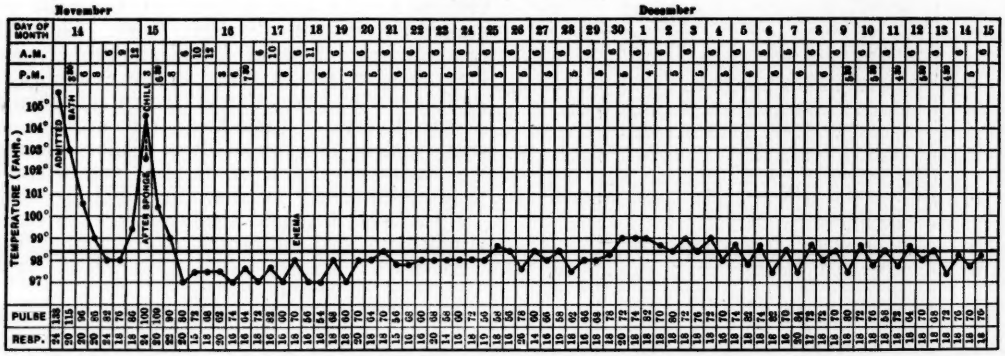
Chart of Case III.



As a rule I employed a 5- or 10-grain quinine suppository every two or three hours, according to the severity of the symptoms and endeavoring to anticipate the paroxysm, *i.e.*, sporulation, by the introduction of as large an amount of the drug as possible. Under the influence of this agent, given in this manner, the tendency to chills was reduced, the functions of the bowels and kidneys were promoted, and the gastric irritability gradually subsided. In some cases, and to meet certain indications, synergistic agents were associated with the specific remedy. When diarrhea was present, I combined equal quantities of quinine and salol with good result—usually five grains of each drug. The antiseptic and antipyretic properties of salol rendered it of material assistance to quinine in checking the diarrhea and reducing the temperature. In some cases ipecacuanha, in one-quarter grain doses, was incorporated in the suppository, conjoined with the quinine; this union lessened the irritability of the intestinal mucous membrane and increased the secretions; it had also a sedative action upon the nervous system. When nervous symptoms were prominent cannabis Indica or monobromated camphor was combined with the quinine. While the quinine destroys or renders the parasite inactive, the other drugs are useful in raising the tone of the central nervous system and relieving the morbid excitability which resulted from the malarial intoxication. Indian hemp possesses valuable antispasmodic properties. Camphor likewise produces a similar effect upon the nervous system. In monobromated camphor with quinine we have an excellent combination of stimulant and antispasmodic qualities. These drugs, given together, allay restlessness and strengthen the heart, the functional activity of which was seriously depressed in the cases of which I speak. If the bowel was irritable, I used an enema of starch water and laudanum before inserting the suppository.

When the fever was high the patient was sponged. In the worst cases it was necessary to place the patient upon a milk diet. Notwithstanding the profound malarial intoxication of some of these cases yet, happily, none had a fatal termination.

Chart of Case IV.



The principal points in this series are the gravity of the cases, the very marked and prolonged debility which the disease produced, the resemblance of some to yellow fever and of others to typhoid, the diagnostic value of the scientific tests, and the efficacy of quinine administered in the form of suppositories when the stomach is intolerant.

Medical Schools to Amalgamate.—It is stated that the Hahnemann Medical College will soon absorb the Chicago Homeopathic Medical College. Dr. George F. Shears, the present head of the Hahnemann, will be the President of the combined colleges. The Chicago Homeopathic Medical College, in merging with the South Side institution, loses its identity. It is believed that this is the first step toward the addition of a homeopathic medical department to the University of Illinois. The combined enrollment of the two affiliated institutions will approximate three hundred; the property is valued at more than $400,000.

MEDICAL PROGRESS.

SURGERY.

Technic for Intestinal Anastomosis.—Until the ideal method is finally reached, there will unquestionably be a continuance of the suggestions for altered and improved technics in this field. FREDERICK HOLME WIGGIN (*Lancet*, November 19, 1904), in a leading article, discusses, (1) a modified method of invaginating the appendix, and (2) a method of intestinal anastomosis, which is a modification of that of the late Prof. Maunsell. The writer has employed the method of anastomosis as originally devised by Maunsell many times, between 1893 and 1897. During this period, it became evident to him that the making of the secondary slit and the subsequent invagination of the cut ends was an unnecessary complication. The technic which he devised and which he has subsequently used on many occasions, was as follows: The portion of the intestines to be excised is exposed freely without the abdominal cavity. It is then emptied of its contents above and below the damaged spot, and the usual clamps are adjusted on either side of the damaged portion. The mesenteric vessels are tied before being cut and the wound in the mesentery is closed by means of interrupted sutures. After the divided ends of the intestine have been disinfected with hot saline solution and hydrozone, the ends are united by two sutures, which are passed through all the intestinal coats. The first suture is placed at the interior of the mesenteric border and is passed in such a manner as to inclose a portion of the mesentery on both sides. This is tied in the bowel and the ends are left long, so that by it and its mate, the intestinal sutures can be held in place while the other sutures necessary to complete the union, are being put in. This mate suture is placed directly opposite at the highest point of the superior border. These two sutures are so held as to make the parts taut. A third suture is passed simply for convenience between the first two and in a similar manner. Its ends, however, are cut short after it has been tied. The parts are then sutured through and through from within outward and piercing all the intestinal coats, then back through the peritoneal, muscular and mucous coats to the interior of the other segment of the bowels. Seven sutures can be conveniently placed, making nine in all. This unites half the circumference of the divided bowels. The remaining 180 degrees can be conveniently covered by placing a suture half way on the ununited end, leaving its ends long and using them to hold the tissues while the parts are sutured as before. This suturing is continued until the last one is to be placed, when a Lembert is substituted. When the sutures have been properly placed, it will be found that the peritoneum is turned in and that, with the exception of the last one, they are not visible. If, for any reason, they can be seen, they should be covered by a reinforcing Lembert stitch. The bowel should then be washed with a 50 per cent. solution of hydrozone, in saline solution, then with saline solution and returned into the abdominal cavity. This should also be washed and filled with the normal saline solution before the abdominal wound is closed.

Operative Treatment of Perforating Gastric Ulcer.—There is no question that the main element tending to success in operating for this lesion is an early diagnosis. A. B. ATHERTON (*Annals of Surgery*, November, 1904) states that on September 19, 1894, he operated to close a perforated gastric ulcer. This was the first occasion upon which this had been successfully accomplished on this continent. The chief reliance, in the opinion of the author, should be placed on the location and severity of the pain together with the board-like hardness of the muscles. Considerable help is also afforded by the previous history of dyspeptic symptoms. Not much dependence can be placed on liver dulness, neither can the presence or absence of the symptoms of shock be looked upon as at all important. Usually more or less will be found at the onset, but this is not always true. Some vomiting usually occurs and a little blood may be found in the vomited material.

Fractures of the Base of the Skull.—Rawling's recent extensive work on this subject has given a fresh interest and impetus to it. GEORGE L. WALTON (*Annals of Surgery*, November, 1904) concludes, as a result of a study of fifty cases of basal fracture autopsied recently at the Massachusetts General Hospital and at the Boston City Hospital, (1) that in a majority of the cases the basal fracture resulted from impact received in the horizontal plane of the skull, whether upon the frontal or the occipital region or upon the side of the head. (2) While certain of the basal fractures extended from the vertex, there was no suggestion of the contre-coup of earlier writers. (3) The line of fractures tended to enter the fossa nearest the point of impact, and to extend in the general direction in which force was applied. (4) The line of fracture in traversing the base tended to follow lines of least resistance, and in twenty-two of the fifty cases, these lines corresponded more or less accurately to those indicated by Rawling, but the exceptions were too marked and too constant to allow the establishment of fixed rules. (5) The sella turcica was implicated in 36 per cent. of the fractures. The petro-occipital and masto-occipital sutures furnished common lines of least resistance. Fractures extending across the base tended to run parallel to the petrous portion of the temporal bone and through the sella turcica. Certain blows on the occipital tended to cause a line of fracture extending to the jugular foramen or across the petrous bone. The portion of the petrous bone containing the auditory apparatus showed itself peculiarly liable to fracture, more often transversely than longitudinally. (6) In seven cases (14 per cent.) the fracture was limited to the base after vault impact in the horizontal plane. Neither Rawling's theory of transmitted force nor the theory of bursting fracture of Von Wahl and others suffices alone to explain these cases. The results of experiments with bodies of simpler structure would suggest the bursting principle of transmitted force in case of blows, while both play an important part in case of falls. (7) The orbital foramen was implicated in 21.4 per cent. of the cases of orbital fossa fracture. (8) Inequality and immobility of pupils, or both, furnish the most frequent and unfavorable sign of fracture of the base. In the forty-four cases in which the pupils were recorded, they were normal in only thirteen. (9) Injury to the ciliospinal tract in its intracranial course is a more probable cause of the Hutchinson pupil and the other pupillary damages than injury to the third nerve or to the cortex, though no single lesion explains all cases. (10) The reflexes may be lessened or lost in fracture of the base, as in any case of violent jarring of the brain. On the other hand, they may be increased even to spasticity, probably through direct pressure on the pyramidal tract, as by hemorrhage. It is probable that the initial result of the impact in all cases has a tendency toward

lessening or loss of the reflexes. (11) Profuse and persistent bleeding form the ear does not suggest middle meningeal hemorrhage.

New Operation for Intestinal Stenoses.—Every one is bound to read with increasing interest the progress of the ingenious devise for securing intestinal anastomoses known as the elastic ligature. THEODORE A. MACGRAW (*Annals of Surgery*, November, 1904) in a fully illustrated article demonstrates that the width of the field of its utility has by no means yet been explored. Having shown how certain of success this devise is in establishing anastomoses and struck with the experience of all surgeons that resections of the colon are followed by a very high rate of mortality, he has endeavored to apply his device to this part of the gut. Wolfler in 1896 stated that 54 per cent. of resection on the large and small intestines resulted in death. It has been definitely shown that the mortality rate varies constantly with the position of the site of operation. The lowest rate being in the ileocecal region, the next safer area being the sigmoid. All radical operations on the transverse colon and the flexures have been attended with a high percentage of deaths. From a careful study of the subject, the author believes that this high mortality rate is due almost entirely to the inability of the surgeon to isolate the transverse portion as well as the two extremities of the great gut. Infection of the abdominal cavity is in most cases the source of death. Furthermore, in view of the fact that half of the colon cases die, it is but natural that surgeons have hesitated in the past to operate until they were absolutely driven to it. As a result of this, many cases have been operated on which were nearly moribund. For this reason the German surgeons resorted long since to an operation in three stages. Obviously, however, although of 12 cases so treated by Mikulicz, ten recovered, the method is so slow as to be of questionable value, and furthermore, it is needless to state that a condition requiring three operations for its relief calls for serious study. The first and essential considerations are that the abdominal cavity be protected from infection by deferring the evacuation of the intestinal contents until the closure of the abdominal wound. Second, the avoidance of secondary operations. The physical examination of the patient should be most careful and complete, the abdominal peristalic wave being one of the surest aids in locating the seat of the trouble. Distention of the lower colon and sigmoid by gas or fluid in fat people is also advised. Having located the tumor, operate directly over it. The coil in which it is located should be drawn out of the abdomen, two limbs of the intestine leading to and from the tumor should be joined together by Lembert sutures and an anastomosis be made with an elastic ligature. The wound is now closed snugly around the protruding coil, the ligatured portion remaining in the abdomen and the tumor with two or three inches of gut outside. A firm silk ligature should be tied around the efferent limb just below the tumor and the gut cut off below it, care being taken that none of its contents soil the wound. On account of the obstruction above it, this part of the gut is always small and is easily handled. It is now closed by an invaginating suture and pushed in until its outer surface no longer projects. The skin is then brought over it and sutured. In this way the efferent limb is entirely disposed of. The efferent limb is now treated as follows: An ovarian trocar is thrust into the intestines and the feces discharged. As soon as this has been accomplished, the diseased portion is removed and a large glass tube inserted into the bowel and tied in place. At the end of four or five days the feces will pass through the anastomosis established by the ligature. The tube may then be removed, the gut sutured and invaginated and the wound of the integument closed over.

PATHOLOGY AND BACTERIOLOGY.

Experiments on the Dissemination of Tuberculosis in the Female Genitals.—This question has been subjected to animal experiments by P. BAUMGARTEN (*Berl. klin. Woch.*, October 17, 1904). The results were quite uniform in the 50 rabbits employed. The material used was the bacillus of the "perlsucht," either as an emulsion or bits of the nodules. The lower and upper parts of the vagina and the horns of the uterus, and also the pelvic peritoneum were infected by injection or incorporation of the whole tissue. Although a severe tuberculosis of the pelvic peritoneum followed in the cases so infected, the tuberculous inflammation never once invaded the genital tract proper. It was also found that infection from the cornu of the uterus never traveled outward but always downward into the uterus. Infection of the lower segment of the vagina developed into a limited inflammation which did not go beyond certain borders but regularly invaded the urethra, although it did not extend beyond the sphincter of the bladder. The bladder, ureters and kidney remained uninvolved. Infection of the upper part of the vagina remained localized. The infection which started in the horns of the uterus also extended into the upper segment of the vagina, but never any lower. This shows that tuberculosis in this region, like that in the male, follows a definite course and is limited to definite anatomical bounds. In tuberculosis of the male genital tract, the dissemination follows the direction of the seminal current, and in the female it follows the course of the ovum from the ovary into the vagina. In the urinary tract likewise, the infection follows the course of the urinary flow. There are two localities where the tuberculous infection may spread from one to the other system. In the male this is the prostatic portion of the urethra and in the female, the urethra and the lower vagina.

Latent Microbic Infection.—The question whether the internal organs of healthy animals harbor germs has been answered both in a positive and negative sense, but has been finally settled by the careful experiments of A. WRZOSEK (*Virchow's Archiv*, Vol. 178, No. 1). When fairly large-sized pieces of liver, spleen, mesenteric glands, etc., were transplanted with all aseptic precautions, a growth was obtained in a large percentage of the cases. Accidental contamination was ruled out, for a control culture showed that the germs in the air were different. Another series of animals was fed with food purposely inoculated with certain harmless saprophytic bacteria which do not normally occur in the intestinal trast. In 30 out of 47 experiments, the same organisms could be isolated from the mesenteric glands, liver, spleen, kidneys, bronchial glands, lungs, bone-marrow and muscles. Experiments were then made to ascertain by which route their various organs were infected, but the contents of the thoracic duct and the blood from the mesenteric veins were found sterile in all instances. This the author explains by the well-known bactericidal action of the lymph which prevents the development of germs when brought on culture-media. When the animals were fed with germs after the thoracic duct had been ligated, the inter-

nal organs were never found infected, which proves without doubt that the thoracic duct is the normal route. Most of the germs normally found, are probably derived from the intestinal tract; the lungs certainly play a subordinate rôle since the conditions for absorption are less favorable and most organisms are prevented from reaching the alveoli by the ciliated epithelium and the normal secretion of mucus. In the light of the above experiments the occurrence of a primary renal tuberculosis, a suppurative meningitis after exposure to the sun's rays or a cryptogenetic sepsis, would be easy to explain. The germs were already present but simply gained a foothold owing to diminished local or general resistance.

Cause of Aleppo Boil.—In the excised nodules of a typical case of Aleppo boil, E. J. MARZINOWSKY and S. L. BOGROW (*Virchow's Archiv*, Vol. 178, No. 1) discovered peculiar epitheloid bodies with chromatic nuclei within the cells. The secretion also contained these bodies, generally inclosed in a vacuole within the epithelium and only rarely in leucocytes or red blood cells. Stained with methylene-azur, two kinds of chromatin could be detected, one at one pole, of pale lilac color and another in the center, more intensely reddish lilac. In all probability the structure is a protozoon, closely allied to *Trypanosoma*. All attempts at culture, especially in hay-infusion, were negative. The authors apply the name *Ovoplasma orientale* to the parasite and believe that infection occurs through the bite of insects.

Relation of Paget's Disease to Carcinoma.—H. C. JACOBÄUS (*Virchow's Archiv*, Vol. 178, No. 1) concludes an interesting article by stating that Paget's disease is a carcinoma from the very beginning, starting from the glandular epithelium of the excretory ducts. The peculiar epidermal changes depend upon proliferation of the glandular cancer within the epithelium. The so-called Paget's cells are emigrated cancer cells; the proof of this is to be found in the fact that similar epidermal changes occur if an ordinary glandular cancer ulcerates through the skin. The slow and apparently benign course of the initial growth is due to the resistance offered by the fibrous and smooth muscle tissues. For the same reason, a cancer beginning in the deeper portions of the gland, does not readily reach the surface and gives rise to Paget's disease.

Bacillus Violaceous Manilæ.—According to a report from Manila, a new pathogenic micro-organism, the *Bacillus violaceous Manilæ*, has been discovered by P. G. WOOLLEY (Bur. of Goverm. Lab., 1904, No. 15). The organism is a short rod staining with the usual aniline dyes, but discolorized by Gram's method. Certain clear spaces are noticed in the interior which are not tinged by the methods used for staining spores. The organism is motile and possesses one polar flagellum. On agar plates, small, round, violet-gray colonies appear in twenty-four hours, which gradually enlarge and deepen in color. Gelatin is liquefied and broth diffusely clouded. On potato, the pigment produced is luxuriant. Milk is rendered slightly acid but not coagulated. The bacillus had been isolated from three cariboos which died suddenly with symptoms of acute hemorrhagic septicemia. A very small amount of the living organism caused death of small animals and produced specific lesions without the appearance of any appreciable immunity. At the site of inoculation there is generally a wide area of necrosis with edema. The lesions in the parenchymatous organs are miliary abscesses which may show a suppurative stage. In the lungs and liver the surfaces of the abscesses may be covered with a fibrinous exudate. The bacilli are found in all lesions. The losses in stock are slight, so that there is little danger of an epidemic.

EYE, EAR, NOSE AND THROAT.

Researches on Temperature of the External Ear.—Winternitz was the first author who stated that he found that as the result of careful measurements, he was able to diagnose a regular afternoon rise of temperature in the external auditory meatus, which dropped again at night. E. SOMMER (*Berl. klin. Woch.*, September 26, 1904) has recently made some observations with the very delicate thermopalpatory apparatus devised by Hertz. This shows only relative values but is exceedingly sensitive. It was found that the curve described by Winternitz does not regularly exist, but that there is a constant difference between the temperature of the two ears, the left one being invariably the warmer. This cannot be appreciated by the sluggish mercury thermometer, but only by the delicate instrument noted. It seems likely that the higher temperature may be associated with the greater activity manifested by the left half of the brain and the more active circulation of this region. The author concludes that further observations in this field may lead to a means for assisting in the localization of intracranial lesions.

Lithemic Nasopharyngitis Due to Systemic Disturbance.—Many cases of nasopharyngitis are due to a lithemic state, according to J. A. STUCKY (*Jour. Am. Med. Ass'n*, October 15, 1904). An index of this condition is the presence of indican in the urine, with an excess of uric acid. Treatment should therefore be directed to the constitutional state and special attention be given to clearing out the gastro-intestinal tract. The patient is put on a restricted diet with plenty of water. Before the evening meal the colon is flushed out with several quarts of soap suds and on retiring, eight ounces of warm olive oil are injected high up into the rectum and allowed to remain. If there is much muscular tenderness or general malaise, strontium salicylate is given in ten-grain doses every two hours. Meats, sweets and salads are to be avoided, alcohol denied, water taken freely between meals, the skin kept active and exercise insisted upon.

Heredity and Treatment of Convergent Strabismus.—From a series of over 2,000 cases examined and 700 operations performed, during the past forty years, H. COHN (*Berl. klin. Woch.*, October 22, 1904) presents the following recommendations: Up to the fourth year the healthy eye should be bandaged for several hours daily. During the fifth year, special exercises should be begun with convex lenses and the stereoscope. The total hyperopia snould be constantly corrected. Operation should not be undertaken before the tenth year, and only in cases of extreme deformity should tenotomy be done during the sixth year. It is well not to promise a cure but only improvement. In severe cases the external oblique may be advanced. From the histories of 2,700 private patients, Cohen finds that in 23 per cent. of the cases some near relative was affected in a similar manner.

Rupture of the Ear Drum by Lightning.—A peculiar accident is recorded by K. BURKNER (*Ber. klin. Woch.*, June 20, 1904), of actual laceration of the drum membrane by a bolt of lightning which struck a tower in which the patient in question happened to be. Examination of the ear showed an extensive tear in the membrane, part of which was folded over the handle of the malleus, and from the nature of the injury it was evident that it could not have been caused by the fall which the boy had. The truth of this conclusion

was shown by its contour, the slight amount of hemorrhage, the absence of symptoms referable to the labyrinth, and also by the fact that the only other injuries on the head were the burns caused by the flash. Very few cases of this kind have been recorded, and the author is doubtful whether the laceration was due to concussion or to the electric spark directly or to the shock attending the sudden discharge of electricity from the body. Healing took place and the boy's hearing was restored.

Inspection of the Antrum of Highmore.—It is confessedly true that the present means of differentiating antral disease give no information save as to the presence or absence of fluid in the cavity. A. BROWN KELLY (*Lancet*, September 17, 1904) states that it is as illogical to treat antral disease in this blind fashion as it would be to attempt to manage otorrhea without examination of the ear. The method of opening the antrum is as follows: The gingivolabial fold beneath the canine fossa is painted with 20 per cent. solution of cocaine. Forty-six cubic millimeters of a 10 per cent. solution are then injected into this area. An incision is then carried through the fold for about two centimeters. By pushing up the soft tissues, the facial wall of the superior maxilla is easily exposed. A sharp trocar is then applied to this surface at a point about five millimeters in front of the zygomatic-alveolar ridge and about the same distance above the incision in the mucous membrane. The trocar is directed backward, upward and inward. The operation is often painless, although the bone section is not always so. If the incision is made as recommended, the small arterial twig, which is located immediately posterior to it, is avoided. Should this escape, the bleeding is unimportant. A trocar of good size should be used rather than a chisel, because the latter jars the patient's head. An ordinary aural or nasal speculum is then introduced into the opening. The end of this speculum should be beveled. Immediately on introducting this instrument the posterior wall of the antrum is seen. By inclining it from side to side, the entire cavity may be minutely inspected. The view of the inner wall of the antrum, seen as it is in perspective, is not good, and the osteum can rarely be made out. The condition of the lining membrane is of the utmost importance and should be carefully inspected. It is well, however, to postpone detail examination until twenty-four hours after, the wound being packed in the mean time with iodoform gauze. The pain is usually insignificant. The cheek may swell to a very considerable extent, so much so in fact, that the eyes may close. The author has opened over forty antra in this way without any serious consequences and with great advantage to the patient and with satisfaction to himself. As already intimated, the chief changes found in this series were lesions of the mucous membrane. Polypoid degeneration of this membrane was found in three cases while polypæ occurred in but one. It was a pedunculated multilobular polypus the size of a bean, which hung from the inner part of the roof and, curiously enough, was met by a similar growth twice as large which rose from the floor.

PRESCRIPTION HINTS.

Bronchopneumonia in Childhood.—It is necessary to estimate at the outset whether the disease is chiefly bronchiolitis, or if there is much consolidation, writes DOUGLAS STANLEY (*Birmingham Medical Review*, October, 1904). Also, whether it is due to an ordinary "cold," or part of a specific disease, or occurs in a debilitated or rachitic child. If it is chiefly bronchiolitis, there are two indications, viz., to prevent increase of the catarrhal process, and to free the tubules of obstruction. The child must be put to bed in an airy, cool room, on a diet of milk diluted with barley water or vichy, or, if older, on boiled bread and milk and such food. The following may be given every four hours:

℞ Vini ipecac. .....m v-x (0.35-0.7 c.c.)
Spiriti ammon. aromat....m v (0.35 c.c.)
Syrupi tolutani .....m v (0.35 c.c.)
Aquæ q.s. ad.....3 ii (8.0 c.c.)

After three or four days, if the child improves, the following may be substituted, given thrice daily:

℞ Vini ipecac .....m iii (0.2 c.c.)
Syrupi glycerophosphat ad.....3 i (4.0 c.c.)

If the case is of medium severity with fair consolidation, a pneumonia jacket should be applied and twenty minims (1.3 c.c.) of wine of ipecac given every seven to ten minutes till vomiting ensues, but not exceeding four doses. The following prescription is given every four hours:

℞ Vini ipecac. .....m v (0.35-0.7 c.c.)
Spt. ammon. aromat. } ..aa m x (0.7 c.c.)
Syr. senegal }
Syr. tolutani .....m xv (1.0 c.c.)
Aquæ q.s. ad. .....3 ii (8.0 c.c.)

If the bronchial element in the breath sounds is marked, ten minims (0.7 c.c.) of spt. ætheris nitrosi may be added with advantage. If in thirty-six hours there is no improvement, one minim (0.06 c.c.) of creosote may be added, and a warm solution of sodium bicarbonate used as a spray. For the very severe cases it is wise to put up a tent-bed and use a steam-kettle with eucalyptus or pine needle oil added. The former prescription may be increased by

℞ Strychninæ sulphat. .....gr. 1/50 (0.0012 gm.)
Spt. ætheris .....m xv (1.0 c.c.)

A cold pack may be necessary, cold affusions to face and chest, or it may be well to seat the child in a bath of hot water up to the waist. Pure brandy, m xv (1.0 c.c.) may be added to the milk and given every two hours. If the temperature is unusually high at the outset, tepid sponging and the following should be resorted to:

℞ Liquor ammon. acetat .....m xv (1.0 c.c.)
Spt. ætheris nitrosi.....m x (0.7 c.c.)
Ammon. bromid. .....gr. v (0.35 gm.)
Syrupi. .....m xx (1.3 c.c.)
Aquæ .....q.s. ad 3 ii (8.0 c.c.)

It is better to avoid aconite. If vomiting and diarrhea are disturbing, the milk may have to be replaced by whey or albumin water or cold chicken broth. Also may be given:

℞ Bism. salicylat. } .....aa gr. v (0.35 gm.)
Sodii bicarb }
Bism. subnitrat .....gr. x (0.7 gm.)
Chlorodyne .....m x (0.7 c.c.)
Pulv. tragacanthæ comp.....gr. xx (1.3 gm.)
Aquæ .....q.s. ad 3 iii (12.0 c.c.)

and Dover's powder, gr. ss to ii (0.03-0.12 gm.) may be added if thought advisable. Poultices should never be applied; they are often dangerous. Emphysema plays an important part in adding to the respiratory and cardiac embarrassment, and in such a condition oxygen may be of value. During convalescence cod-liver oil or the hypophosphites may be administered.

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COLLEGE GRADUATES IN MEDICINE.

YALE University has lately published some very elaborate studies concerning the careers of her graduates. It is conclusively shown, as far as this university is concerned, that a smaller proportion of her students become professional men than a century ago, but this proves nothing. We may safely say that a larger proportion of professional men exists in each community than ever before. The mere fact that a greater number of graduates enter business means only that a century ago a young man that was preparing for business thought a university training quite out of his line; and it was only the predestined professional man who thought of going to college.

The graduates who indulge in a financial career represent grandfathers who went without a college education; their presence at college does not alter their predestined relation to the business world. The statistics mean not that more college-bred men are choosing business instead of a profession, but that more business men are college bred than heretofore.

The statistical report on physicians is what interests us most. At Yale the lawyer is in the ascendant. Out of the living graduates of the university to-day thirty per cent. are lawyers, eight per cent. physicians and seven per cent. ministers. But either the physician is more successful financially than the lawyer and the minister, or else his calling is not so arduous, for whereas one out of ten of the living physicians who were Yale graduates have gone into business, nearly one-fourth of the ministers as well as the lawyers have given up their professional life for that of finance or teaching.

The minister's point of view is well discussed in the current issue of the *World's Work*, by Everett T. Tomlinson, in his article on "The Decline of the Ministry." He attributes this to the poverty of the minister, the petty and irritating work he is obliged to do in addition to, and to the detriment of his preaching, the lack of freedom in honest conviction and the degrading sense of being part of a "beneficiary system." Certainly the physician has none of these troubles to combat. He may be poor, but his income is not limited to a meager salary. He may be obliged to minister to petty and ignorant people, but they are not banded together with power to dismiss him from their conjoined service. His theories may be criticized, but they do not damn him, and when he sends out his bills he is much more apt to be aware of his position as a dispenser instead of a recipient of charity.

In fact, there has never been a time when the study of medicine has been so promising as it is at present. It is true that there are more doctors in a city block than can be comfortably maintained by the citizens thereof; but that is not the point. The study of medicine has passed the stage where its remuneration is confined to the practice of it. It has become fundamental in daily life. This is the era of preventive medicine and sanitation, of laboratory research and applied science. There are ten avenues with good remuneration open to the young physician to-day, where twenty years ago there was nothing but the house-to-house call and the clinic. The opportunity lies with the physicians themselves. There are tuberculosis sanitaria to be established all over the country. There are methods of inspection for contagious diseases in schools and factories, and great business houses to be established. There are tenement problems to be met. All these and many more have passed the first stage of charitable endeavor and sentimental interest. They have become as essential to civic life as is a corporation's legal counsel, and the

opportunity is open to the energetic young physician to broaden his professional horizon by bringing modern medical science into the city as well as into the household.

Again, there is over and above all this too much of genuine satisfaction in the study of medicine to permit of many desertions. The hand-to-hand conflict with disease is a stirring combat and the mental satisfaction of the new discoveries with the microscope and test tube lend a zest to living that is satisfying to a high type of mental culture.

THE ACID INTOXICATIONS.

BY slow degrees and with much travail is nature delivering up the mysteries of her more involved chemical processes. While for many years we have written exhaustively on the oxidations and reductions that take place in the human body and of their relation to diseased states, it may be said that we are as yet only in touch with the earliest stages of the birth of correct ideas concerning these processes.

One type of perverted chemisms has been termed the acidoses, or acid intoxications, and the researches of Magnus Levy, Herter, Von Mering, Minkowski and others, have advanced to such a stage that they offer practical guides to treatment, particularly for the more flagrant or pronounced states of these forms of slow poisoning.

It is recognized that two important factors enter into the acid intoxications. Such acids may, in small part, be absorbed from the stomach from foods, etc., but these are of much less moment than the organic acids that are formed as the result of damage to the cells of the body whereby the ordinary products of metabolism are not properly oxidized. These oxidations, it is well established, are carried on particularly in the liver cells and in the muscles, but when these cells fail in their full duty organic acids, particularly diacetic and oxybutyric, are formed in comparatively large quantities, and as a result of their non-combustion, they eagerly seize upon the alkalies of the body cells and withdrawing these from the metabolic activities, set up a vicious cycle, whereby cell respiration is very much hampered. For, as it is well recognized, it is necessary for the blood to utilize the sodium of the body in combination with CO_2 to carry on its oxidation functions in the lungs. The sodium, having been largely seized upon by the organic acids, is not available for this most important work, and Pelion is heaped on Ossa to the ultimate causation of disease.

It is gradually becoming apparent that a number of causes bring about the primary increase in the formation of these acids, and an increasing number of affections of a milder or severer grade are being recognized as following in the train of these suboxidations.

As for internal metabolic causes, we are not yet in a position to assert just what are the starting points. Intense intestinal putrefaction is known to set free a series of bodies which cause an increase in the acetone bodies in the system, but those most open for research are found in drugs. Thus carbon monoxide is known to increase the acetone bodies, so also is phlorhizin, which drug induces a type of glycosuria of more than passing experimental interest. From another viewpoint adrenalin brings about a glycosuria, as do also chloroform, ether, antipyrin, morphine, atropine and others.

The exact steps in the process of acid formations by these bodies is not yet outlined, but they each and all are opening up new lines of approach to the solution of the first cause.

The results of these intoxications we have always with us. Some, like arthritis deformans of the non-infectious type, defy all efforts at analysis, and we are compelled to fall back on a hereditary nervous defect, which is hair trigger, as it were, to this type of acid intoxication to account for the trophic disturbances in the joints.

It seems not improbable from general research that the cyclic vomiting of children, the vomiting of pregnancy, and eclampsia, have as one of their etiological factors at least the overproduction of these organic acids. while in diabetes, the classical extreme of complete acid intoxication, is met with.

While the general procedures of the therapeusis of these conditions are only vaguely outlined by the slow accumulation of a rational understanding of the morbid processes themselves, it is not too visionary to hope for much relief in the near future.

For the most pronounced of these diseases, diabetes, the general rationale is now fairly clearly perceived, but it begins unfortunately only after the disease has become established. The knowledge that will lead to the possible prevention of diabetes still is hidden.

Alkalies, to replace the used sodium bases,

careful intestinal hygiene, particularly limiting excessive putrefaction, a diet not too restricted, especially not as to water, but one sparing in fats and carbohydrates, a partial removal of the ban on proteids, and an annihilation of the doctrines founded on the fancied differences in red meats and white meats, these, combined with an open-air occupation, involving mild exercise in a carefully selected equable climate, are the main features of the therapeusis not only for diabetes mellitus, but for practically all of the acidoses.

PNEUMOCOCCUS PERITONITIS.

A WIDER knowledge of this very serious and as yet comparatively little known sequel, of pneumonia, is evidently much to be desired.

Frank S. Matthews, in a leading article (*Annals of Surgery*, November, 1904) states that in all, 106 cases have been reported. He believes, however, that because of the difficulty of positively establishing the diagnosis, and in large measure because of the neglect with which the subject has been treated, a great many cases have not been recognized.

For this reason and because of the fact that the pneumococcus in its multifarious clinical manifestations, seems to be particularly active, and, if we are to give credence to the Board of Health reports, to be markedly and almost epidemically on the increase, the season is timely to draw the attention of the general practitioner to the clinical manifestation of this interesting pathological entity.

Acknowledging further indebtedness to the article already referred to, it may be stated that the lesion is probably three times as frequent in children as in adults. As to the sex, a most remarkable and as yet unexplained relation exists, viz.: Under fifteen years of age it is seven times as frequent in girls as in boys; over fifteen years of age the two sexes are equally affected. This would seem to show that the establishment of the menstrual function had something to do in safeguarding the female. How or why is as yet a matter of conjecture. It would seem to the casual observer that before further explanation for this most extraordinary ratio be sought, efforts should be made to determine that the ratio itself is not one of those interesting vagaries of figures. This, particularly, because the statistics upon which it is based have their foundation on a very small number of cases.

The pathological anatomy is very similar to that of pneumococcus empyema. The exudate is characteristically odorless, highly fibrinous, of a greenish-yellow color and varying very markedly in its consistency.

One very favorable factor in the distribution and localization of this lesion lies in the marked tendency shown by the exudate to localize itself either in the pelvis or in the hypogastrium. This, naturally, militates very much in favor of the patient, because, as is well known, the pelvic peritoneum can better take care of bacterial toxins than any other portion of the sac, and, further, the "walling off" of the process in the region of the umbilicus has, in unrecognized cases, enabled the abdominal walls to part at the point of least resistance, viz., the umbilicus, and allow the spontaneous discharge of the abscess. In most of the reported cases it is of uncommon interest to note that the peritonitis has not been secondary so far as observations went to pneumococcus invasion elsewhere, a least of a demonstrable type.

The clinical picture is, in a measure, characteristic, and typically presents three stages. The first is manifested by tenderness and distention, accompanied by pronounced fever and vomiting. The muscular rigidity and other symptoms are not so marked as in other types of peritonitis. Within a few days the second stage manifests itself by a cessation of the vomiting and a return of the temperature to normal. The patient, as a consequence, looks better, and the attendant is prone to be thrown off his guard. Diarrhea, as a rule, develops in this stage. In a subacute, but relatively rapid manner, the increase of the exudate, however, takes place, the temperature within a few days rises, a tense cystic mass appears in the hypogastrium; there are chills, cachexia, weakness and every other symptom of general invasion and death is almost certain to subvene unless the abscess is opened or spontaneously evacuates itself.

The differential diagnosis of the disease in its later stages is somewhat difficult, unless the characteristic symptoms have been carefuly watched, and, it may be said, unless they have been present. As in many other lesions, typical symptoms do not appear at all. The first stage may necessitate the question being answered whether or not the peritonitis exists at all. This is particularly true of the form of infection under consideration, because paresis of the intestines is rare, and, moreover, because pain and distention are

not necessarily marked. In the second stage, with its diarrhea and slight distention, the clinical signs are not unlike those of typhoid. The terminal stages of the disease simulate tuberculous peritonitis.

Jensen (*Archiv für klinische Chirurgie*, 1903, lxx, 91), states that the source of the infection is not unlike that attributable to other types of invasion, viz., through a wound; through the diaphragm; through the genitals; through the intestinal tract; through the blood; from pneumococcic foci in the abdominal organs. It is interesting that the transportation of bacteria from the lungs through the diaphragm, in case of pneumococcus peritonitis following a lobar pneumonia, unless it takes place indirectly through blood infection, must be brought about by retrograde transportation through the lymphatics. So far as genital infection goes, the phenomenal frequency of the disease in girls has naturally suggested that the germs find their way to the peritoneum by way of the tubes. Nevertheless, salpingitis of a pneumococcus type is extremely rare and has not as yet been reported except in adults.

During the well-marked epidemic of lobar pneumonia, which this city experienced last year, at least one case of this pneumococcus peritonitis developed as a sequel. No less an authority than Janeway considered the diagnosis of pneumococcus peritonitis correct, and, indeed, the pneumococcus was found imbedded in the fibrillar meshes of the exudate. This finding was made and reported from the Cornell Laboratory by Thomas W. Hastings. It is not uninteresting to note, however, that Dr. Hastings was unable to obtain the germ by culture methods. This corresponds with the findings as reported by Matthews, that Netter in 140 cases of peritonitis bacteriologically examined found the pneumococcus but twice.

A point of dissimilarity, however, between the case under consideration and those reported by Matthews, lay in the fact that the exudate was not alone not localized, but was present in extraordinary quantities—nearly eight quarts was removed by trocar. Throughout Matthews's article, he speaks of the exudate being purulent. That it may be distinctly serous and, indeed, have many of the characteristics of a transudate, is not to be doubted, although confessedly the cases presenting this type of what might be called peritoneal pneumococcus hydrops are rare.

The treatment of cases distinctly associated with purulent exudate is, of course, self-evident. Those, however, which from the onset simulate in the later stages of the disease as described by Matthews, tuberculous peritonitis of the so-called wet type, are certainly *sub judice* in the matter of treatment.

It is generally agreed that free incision and exposure to the air with or without drainage will do much toward curing this form of tuberculous peritonitis. When pneumococcus peritonitis develops, as it may do, either without the initial stages described by Matthews, or else passes through them at so rapid a rate that they are not recognized, the most natural question which the practitioner has to ask himself, is whether to relieve the distention by puncture or by open incision. This is confessedly a difficult question to answer, since it is not yet known why abdominal section is curative in the case of the tuberculous infection. From a very limited experience, it may be justifiable to urge puncture and aspiration patiently repeated until this treatment is shown by the increasing rate of fluid collection, to be unavailing. This conservative method has, in the past, proved successful.

ECHOES AND NEWS.

NEW YORK.

New York Academy of Medicine.—At the annual election, held Thursday, December 15, the following officers were elected: Charles Loomis Dana, President; T. Mitchell Prudden, Vice-President; Abraham Jacobi, Trustee; Reginald H. Sayre, Treasurer of Board of Trustees; William C. Lusk, Committee on Admissions; L. Emmet Holt, Committee on Library; David Bovaird, Jr., James Ewing, Charles L. Gibson, Homer W. Gibney and Edward L. Keyes, Jr., Delegates to State Medical Society.

Lecture by Dr. Flexner.—Dr. Christian A. Herter has announced to his class at the College of Physicians and Surgeons, that Dr. Simon Flexner, of Johns Hopkins, will lecture at the College during the present month on "The Action of Snake Venom." Owing to the large number of students who desire to attend, the lecture room cannot be opened to the profession, but an abstract will be printed in the MEDICAL NEWS in the issue following the lecture.

No Mid-Year Examinations at P. and S.—Contrary to the usual custom, no examinations will be held at the College of Physicians and Surgeons at the end of the first half year. This was decided upon at a Faculty meeting held last May and has just been made public. The reason given is that students neglect clinics and other college work during the mid-year to study, and thus for about a week the benches are empty, which interferes seriously with courses given by certain professors. The students are circulating a petition to have the measure annulled and are supported in their effort by a few of the Faculty who wish the old régime continued.

City's Power to Protect Itself.—Much depends, writes the New York *Sun*, on the opinion of the Corporation Counsel on the question propounded to him by Health Commissioner Darlington, concerning his right to revoke the license of a milk distributing firm in this city which has been selling impure milk. The city should certainly have this power to protect itself, for experience has shown that fines are not a preventive of fraud. The large dealers who find big profits in adulteration pay without protest fines of $500 and go right on with their old methods. Dr. Darlington reports the case of one large concern whose head he has haled to court four times and had fined $500. The concern still does business. Now the Commissioner has gone after the dairies, where, after all, the beginning of the evil lies. The results of some of the first inspections have been startling. Flagrant violations of the sanitary laws have been found in large dairies right at our door. In several cases the cows were seen to be milked in filthy stables, and to counteract the impurities that thus got into the milk formaldehyde was used freely. At certain creameries men were found mixing yellow coloring matter in the cream before bottling it. These were cases where the milk was later handled by "high class" dealers, and if such a product is distributed at high prices, what must lesser charges bring the consumer? If the Commissioner has a right to bar the milk of such concerns from the city, the frauds will readily be prevented. If the law does not now give him the right to revoke the licenses of dealers participating in such frauds, it should be amended to do so.

PHILADELPHIA.

Blockley Physicians' Banquet.—The eighteenth annual dinner of the Association of ex-President and Resident Physicians of the Philadelphia Hospital, was held at the Bellevue-Stratford, December 6. Drs. H. C. Wood, D. J. McCarthy, E. M. Welty, G. M. Guthrie and H. B. Calhoun, spoke to toasts. Dr. E. L. Duer is President of the Association.

Site Secured for Cancer Hospital.—The American Oncologic Hospital has secured the lease of property at Forty-fifth and Chestnut streets, the intention being eventually to buy it. Drs. A. Hewson, G. B. Massey and H. R. Swayne have been appointed on the medical staff.

Mont Alto Sanatorium.—The Mont Alto Sanatorium for Consumptives, on the State Forestry Reservation in Franklin County, established at a cost of $8,000, has a record of 66 per cent. of the 80 patients cured or recovered sufficiently to leave the camp. The legislature is to be asked for $50,000 to erect new buildings for increasing the capacity from 30 to 75 patients.

Dr. Ashton Goes to the University.—Dr. Thomas G. Ashton, formerly connected with the Jefferson Medical College, has been elected adjunct professor of medicine in the University of Pennsylvania. Dr. Ashton is one of the most prominent of the younger teachers of medicine in this city. Early in the present year he was chosen Professor of Clinical Medicine in the Philadelphia Polyclinic and also a manager of the hospital of the University. He is visiting physician to several hospitals.

The Relation of Food Preservatives to the Public Health.—Dr. Victor C. Vaughan, of Ann Arbor, Mich., addressed the Pathological Society of Philadelphia, on the above subject, December 8. The discussion was opened by Dr. Charles Harrington, of Boston, and Prof. C. B. Cochran, of West Chester. Dr. Vaughan prefaced his remarks by a consideration of the general principles of food preservatives, stating that they have been used since prehistoric times. He said that in deciding whether a certain preservative or preservatives in general are to be allowed, people suffering from disease, as well as the healthy ones, are to be considered. The aged and infants are also to be remembered, especially unhealthy infants. To be legally sanctioned, preservatives must be innocuous to all these groups.

Preservatives that Do Not Preserve.—Dr. Vaughan said that many questions regarding the use of preservatives would be settled if it were decided what substances are real preservatives and what are preservatives in name only. A material put into a food to maintain a color or to impart to it another color is not a real preservative, nor is one that only prevents the appearance of a disagreeable odor a real preservative is one that prevents the growth of deleterious bacteria. In experimenting with the lactic acid bacillus he has found that formaldehyde in strength as low as 1 to 50,000 will hinder its growth in such a manner as to prevent milk souring but it has little or no effect on colon bacilli. If the latter are present in milk, the formaldhyde is a source of danger in that it may be responsible for a false sense of security. A mother would never give sour milk to a child, but if the formaldehyde prevents its souring she will give it though it contain other bacteria. This was likened to an obstructed street at night with its red lantern; the danger signal is taken down by the so-called preservative but the obstruction still remains. Sodium sulphite may be of the same order; there is need of investigation of numerous substances along this line.

Regulation of Poisonous Preservatives.—Experts differ as to what constitutes a poison but Dr. Vaughan designates as a poison any substance which chemically destroys cells or impairs their function. These substances should be permitted as preservatives only under the most careful regulation by law. Their secret use, even in quantities much below what would be considered a poisonous dose, is not permissible. Any person who chooses should not be allowed to put poisons in our daily food when physicians are the only ones allowed by law to administer poison to other individuals. Druggists and physicians are regulated by law in handling poisons; why not regulate their employment in foods? Certain poisons are good preservatives for certain foods at proper times but this must be known by all who eat those foods. The three requisites of a preservative are: (1) It must be a real preservative; (2) in comparatively large quantities it must not materially impair the digestive and allied functions; (3) it must not be a cell poison or else be added only under legislative restrictions by persons authorized to do so and the food containing it must be so labeled.

Ventilation of Railway Cars.—The Pennsylvania Railroad Company has, after a period of experimentation, adopted a device for ventilating its passenger coaches which promises to do away, not only with bad air, but also with the overheating and underheating of the cars—three evils from which every traveler has at some time or other suffered. The description of the device indicates that there is about it nothing that is severely complex. Outside air is brought into the car through hoods covered with wire gauze to exclude cinders, passed through vertical downtakes to a space under the floor, whence it is driven into the heater boxes and warmed by the

radiators. From the heater boxes the air passes into the car proper at points in the main aisle, performs its mission and is allowed to escape through the ventilators which are provided with the necessary suction to aid the circulation of air. When all the ventilators are open, 60,000 cubic feet of fresh air is provided per hour. In a day coach this would give each passenger approximately 1,000 cubic feet of fresh air, or fifteen complete changes of air every hour. In a Pullman sleeper, the amount per passenger would be much greater. There is also a method of compensating for the difference of conditions when the car is in motion and when it is not. The tests on the Pennsylvania have been so satisfactory that several hundred cars have already been equipped with the device. If all that is claimed for the system is true, its general adoption, it would seem, cannot long be delayed, for the things that it is said to accomplish are parts of a reform long needed.

CHICAGO.

Work of the Medicolegal Committee of the Chicago Medical Society.—This Committee, during the two years of its existence, has learned several facts. The first of these is that no circumstance is too trivial to form the basis of a damage suit. For example, a member of the Society is being sued at the present time on the following facts: A child of about a year had an ordinary bronchitis or bronchopneumonia. It was not especially sick. He saw it about five or seven times in a week or ten days. He was told that the child was better, and that he need not call any more. Another physician attended it for about a week. By that time the child was well. The first doctor tried to collect his bill. The parents resisted, suing him for $10,000 damages. The child is well and always has been, except for that two weeks. Another example: A doctor attended a child in 1900. He sued for his bill. The employer of the father told him that he must pay the bill or be fired, or justify himself in a refusal to pay. It costs $10 to the lawyer to start a suit, so one was started. This is 1904, nearly 1905; the man has not paid the bill, nor been fired. The second point that the Committee has learned is that it is not the wealthy, conspicuous doctor who is sued, as a rule. The Committee has found that nearly all suits are entered as a means of resisting a physician's bill in the hope of a compromise, and nulling the bill, paying the lawyer, and perhaps getting $25 or $50 for the party suing. As would be expected, they seldom go after a man unless they think he can be bluffed. A man who has large means or large influence is seldom menaced. They are especially prone to go after the younger men. The next thing the Committee noticed is that there is fashion in damage suits. A few years ago the fashion ran to fractures and dislocations. Now it runs to diseases of women and children, including the conduct of labor. The prevailing fee for obstetrical service and after-care is so very small in certain parts of the city that the physician is mentally compared with the midwife. Therefore, when he fails to devote all of his time to a case for a certain while, he is very liable to be sued for negligence. It is very apparent to the Committee that the damage suit laws should be amended. Any man, with or without apparent cause, can get another man to put up $10 for the cost of a suit. The entering of a suit and the advertising given it does some man, whose reputation in his capital, great damage, yet he has no recourse. This is the only country in the world that does not require an indemnifying bond as a condition for instituting suit.

Evidence of Impurities in Prescriptions.—The State Board of Pharmacy is about to prosecute more than one hundred druggists of Chicago for selling adulterated drugs. The evidence has been procured and chemical tests have been made which prove the presence of alien matter in the prescriptions which called for pure drugs.

Coroner's Report for the Year Ended November 30.—The total number of deaths investigated during the year was 5,960, and 3,821 inquests were held. In causes of death fire heads the list with the Iroquois loss of 575 lives. There were 426 suicides, and 382 met death in railroad accidents. Of the suicides, 103 were between forty and fifty years of age.

Insane and Paupers.—The annual report of the Detention Hospital shows that the total number of patients admitted during the year was 1,604. Superintendent Podstata, of the Dunning Institutions, reports that the improvements in the way of new buildings have been of inestimable benefit; that the farm has realized substantial revenues, and many novel features have been provided for the patients. The average daily number in the insane department has been 1,780, and at the Poor House, 1,160. The total cost of maintenance has been $376,442.

County Hospital.—Warden Happel, of the County Hospital, reports that valuable additions in the way of service and buildings have been provided. During the year 22,301 patients have been treated at the Cook County Hospital. The total cost of maintenance was $329,268.96.

Report of Chicago Lying-In Institution and Dispensary.—"Three thousand, nine hundred and ninety-nine babies, born in the homes of the poor, within seven years, without one mother's death." This is the record of which the directors, officials and obstetricians of the Chicago Lying-in Hospital and Dispensary are proud. They believe it to be unequaled in the history of maternity hospitals, the world over. This institution and dispensary was established in 1895. Since that time 5,800 cases have been cared for. During that period of nine years only three deaths have occurred. Of 700 cases treated at the hospital itself only one has been lost in spite of the fact that many desperate cases were received. In this quarter of the city from five hundred to one thousand cases should be cared for yearly, and the officials at the hospital are endeavoring to raise $12,000 for the erection of a suitable dispensary.

Work of Children's Hospital Under Consideration.—A recent announcement was made that approximately $100,000 already had been subscribed for the construction of the Children's Memorial Hospital, which will cost $300,000. As the hospital is to be built on the pavilion plan, one section at a time, it is probable that work will begin soon. The nucleus of the new institution will be the Maurice Porter Memorial Hospital for Children. Mrs. Julia F. Porter founded the institution in 1882, as a memorial to her son. Mrs. Porter will give $75,000 toward the new institution, and another gift of $20,000 is in hand, with many smaller subscriptions. An endowment in perpetuity requires $5,000; for a year, $250; and during one life, $3,000.

Reappointment of Dr. Podstata.—Dr. V. H. Podstata has been reappointed superintendent of the County Institutions at Dunning; Dr. H. I. Davis has

been appointed County Physician, and Dr. Henry G. W. Reinhardt has been appointed Assistant Coroner's Physician.

New Hospital.—The design of Richard E. Schmidt has been accepted for the new Michael Reese Hospital, which is to cost about $400,000. The new hospital will be a six-story fireproof structure.

Appointment of Dr. Howard.—Dr. Henry William Howard has been appointed Secretary to the Surgeon-General, with the rank of first lieutenant and assistant surgeon.

Rock Island System Surgical Association.—The second meeting of this Association was held in the Assembly Hall of the Northwestern University Building, December 7 and 8. There were approximately 150 railway surgeons in attendance, and papers were read and discussed as follows: "Our Association," by Dr. T. B. Bradford, Cotton Plant, Ark.; "Two Seemingly Hopeless Cases," by Dr. W. F. Fee, Meade, Kan.; "Traumatic Laceration of Urethra; Resection and Bone Suture for Ununited Fracture of Ulna and Radius," by Dr. H. A. Leipziger, Burlington, Iowa; "Burns and Scalds," by Dr. R. P. Tye, of Chickasha, I. T.; "Is the Present System of First Aid to the Injured, as Practised in the U. S. Regular Army Applicable in Railroad Work?" by Dr. F. H. Clarke, El Reno, O. T.; "Infected Wounds," by Dr. J. A. Finlayson, of Armstrong, Iowa; "First Treatment of Eye Injuries," by Dr. R. S. Magee, of Topeka, Kan.; "Embolism of the Popliteal Artery, with Report of Three Cases," by Dr. E. W. Clark, Grinnell, Iowa; "Pupil Reactions and Field of Vision in Examination of Railway Employees," by Dr. W. C. Bane, Denver, Col.; "Punctured Wounds, with Report of an Unusual Case," by Dr. C. B. Kimball, West Liberty, Iowa; "Street Railway Surgery," by Dr. A. O. Williams, Ottumwa, Iowa; "A Queer Case of Malingering," by Dr. Geo. P. Hanawalt, Des Moines, Iowa; "Injuries to the Deep Muscles of the Back, with Report of Cases," by Dr. M. W. Bacon, Englewood, Ill.; "The Local Surgeon, his Duty to the Injured and his Duty to the Railway Company," by Dr. G. A. Spaulding, Avoca, Iowa; "Hysteria: Can it be Traumatic?" by Dr. L. W. Littig, Iowa City, Iowa; "The History of the Shield Dressing for Injured Eyes," by Dr. H. Gifford, Omaha, Neb.; "The Treatment of Sciatic Rheumatism with Solution of Osmic Acid," by Dr. S. V. Hall, Rock Island, Ill.; "Extensive Necrosis of Frontal Bone Following Slight Injury," by Dr. G. E. Hartshorne, South McAlester, I. T.; "Compound Comminuted Fractures of the Leg with Reports of Three Cases," by Dr. D. I. Christopher, Colorado Springs, Col.; "Dressing Compound Fractures," by J. V. Brann, Knoxville, Iowa. Delegates were appointed to the American Association of Railroad Surgeons. In the afternoon of the second day, Professor Weller Van Hook gave a surgical clinic at the Wesley Hospital. He operated on and exhibited several interesting surgical cases, making running comments on each as to the methods pursued and after-treatment. Dr. Van Hook was tendered a rising vote of thanks for his entertaining and instructive clinic.

GENERAL.

German Birthrate.—Official statistics covering twenty-six years show a steady and noticeable decrease in the birthrate in the large cities in Germany, in spite of the fact that the marriage rate is higher than in cities of less than one hundred thousand inhabitants and in the country. Berlin, which passed the two million mark in December, presents the heaviest decrease in the birthrate. In the period from 1896 to 1900, it averaged 28.9, against 44.9 from 1875 to 1880. The highest birthrate is in the great industrial centers of the Rhenish provinces.

Proposed Memorial to Dr. Osler.—The first organized movement to consider the proposed memorial to Dr. Osler, who will leave here in June to take up his residence in England as regius professor of medicine at Oxford University, took place last week at a meeting of the Baltimore City Medical Society. The plan is to erect a library building in some suitable location in Baltimore, costing about $100,000. The sum of $10,000 has already been contributed in Baltimore, and committees have been formed in Philadelphia and Cleveland for the purpose of raising money. Dr. John H. Musser, professor of clinical medicine at the University of Pennsylvania, has consented to be chairman of the national committee now being formed. The national treasurer will be Gov. Warfield, of Maryland, and Dr. Henry Barton Jacobs will be secretary.

Dr. Osler's Successor.—It was learned last week, writes the Baltimore *Sun*, that the trustees of the Johns Hopkins University and the advisory board of the medical faculty of the institution are now strongly inclining to the appointment of Dr. Lewellys Franklin Barker, professor and head of the Department of Anatomy in the Rush Medical College of the University of Chicago, and formerly of the Johns Hopkins University, as the successor of Dr. William Osler, who leaves Baltimore next spring to become regius professor of medicine in the University of Oxford. While the name of Dr. Barker has been previously mentioned among a number of others as a probable successor to Dr. Osler, it now seems that the appointment of Dr. Barker has become the most favorable one in the eyes of the most important members of the Johns Hopkins Medical Faculty, who will virtually decide upon the final choice. It has ever been the policy of the Johns Hopkins University to endeavor to secure as the heads of departments men of extraordinary genius, without respect to age, the principal qualification being a reputation for ability in original scientific research work and investigation, and it is for this qualification that Dr. Barker commends himself so favorably to the authorities of the institution.

Although a young man, only thirty-seven years old, Dr. Barker's career has been a brilliant one, and he stands to-day among the foremost anatomists of the country, and is ranked as an authority among such prominent men as Prof. Franklin P. Mall, of the Johns Hopkins Medical School. In his course of work at the Johns Hopkins University from 1891 to 1900, during which time he held a number of positions, his work was stamped as extremely brilliant and in such investigations as his services upon the Johns Hopkins Medical Commission to the Philippines, he won the admiration of scientific men throughout the country.

Dr. Barker is a Canadian—a native of Norwich, Ont. He received much of his education at Canadian institutions and his medical degree at the University of Toronto. Dr. Barker was house officer of the Toronto General Hospital, 1890-1891, assistant physician of the Johns Hopkins Hospital 1891-1892, Fellow in Pathology in the John Hopkins University, 1892-1894, associate in anatomy, 1894-1897, associate professor of anatomy, 1897-1899. In 1899 he was a member of the Johns Hopkins Medical Commission to the Philippines, and in 1901 a member of the special

commission appointed to determine the existence or non-existence of the plague in San Francisco. He is the author of a number of medical and anatomical treatises. While there are a number of other men suggested to succeed Dr. Osler, Dr. Barker is said to be nearer the type of scholar desired, and that he will be the favored one to be chosen. The advisory board, which virtually makes the choice, is composed of President Ira Remsen, Dr. Osler, Dr. William H. Welch, Dr. H. M. Hurd, Dr. H. S. Kelly, Dr. W. K. Brooks, Dr. W. S. Halstead, Dr. J. J. Abel, Dr. W. H. Howell, Dr. F. P. Mall and Dr. J. Whitridge Williams.

Aesculapian Club.—The Aesculapian Club, of Boston, held its winter meeting at the Medical Library, Thursday, December 8. Dr. T. C. Munro and Dr. E. H. Bradford were the guests and speakers of the evening. This Society, founded in 1902, takes in annually from the graduating class of the Harvard Medical School eighteen members, forming a new "chapter" with separate organizations and meetings. The club, as a whole, has two meetings a year. The object of the club is "to encourage in its members a spirit of emulation in medical work, and to promote a permanent active interest in the affairs of the Harvard Medical School;" in addition to this there is a social side to its meetings which render them besides instructive very enjoyable. At the last meeting Dr. Munro gave a most entertaining talk on the Mayo Brothers, of Rochester, Minn., and Dr. Bradford on "The Future of the New Harvard Medical School."

Clever "Hans" now a Telepathist or Muscle Reader.—Some time ago the fame of a horse named "Clever Hans" spread over the newspaper world. Hans spelled out names, told the time, did simple sums in arithmetic and had other attainments which caused him to be seriously credited with reasoning powers on a scale never before reached in the horse world. A scientific commission which was appointed to investigate the stories of the animal's wonderful performances has made a report in which it says that Hans is unable to count or read a sum. It was demonstrated that he was unable to answer a question unless the question was known to one of the bystanders. He was likewise unable to answer when blindfolded. The commission concludes that the horse requires optical assistance, but adds that it does not follow that the assistance must be knowingly given. The commission believes that the horse has been so perfectly trained as to be able to recognize the slightest change in bodily position, which is a natural consequence of the trainer's course of thought. One commissioner declared that the horse was able by careful watching of the owner to recognize the slightest movement which was unknown to the owner himself, the latter serving as a communicating medium to the horse's intelligence.

Boston's Great Opportunity.—That $5,500,000 of the estate of Peter Bent Brigham, who died in 1877, can be used to found a hospital in this city for indigent persons, was the decision of Judges Putnam, Aldrich and Brown in the United States Circuit Court of Appeals to-day. The money has been turned over by the Brigham executors to the Peter Bent Brigham Hospital Corporation, which was organized in pursuance of the terms of Mr. Brigham's will. Herbert F. Brigham, one of the heirs, brought a bill in equity to recover his alleged share of the vast estate, upon the ground that the gift for the hospital was void, as being in violation of the rule against perpetuities, as it was the intent of the will that the gift should vest at a time beyond the life or lives of persons living when the testator died and twenty-one years after. The plaintiff also held that the amount of the gift beyond $1,500,000 was distributable among the relatives of Mr. Brigham upon the ground that by the general laws of Massachusetts a corporation such as the hospital had no legal power to hold more than $1,500,000 in property. Mr. Brigham's will directed that the residue of his estate should be "held, managed and invested" by his executors "for the term of twenty-five years from the time of his decease." The executors were to pay certain annuities, and to add the surplus income to the principal, and at the expiration of the twenty-five years they should dispose of the fund to found a hospital in Boston, to be called the Brigham Hospital, for the care of persons in indigent circumstances.

Ohio State Sanatorium for Tuberculosis.—The Ohio State Sanatorium Commission at a recent meeting adopted the following minimum requirements for a site for the proposed hospital for tuberculosis: (1) It shall include not less than 350 acres of land. (2) A portion of this land shall be not less than 800 feet above sea level. (3) A certain part of it must be timbered. (4) The land must afford a suitable site for buildings, sloping south, south-southeast or south-southwest; and be well sheltered from prevailing winter winds. It must also offer a pleasing landscape. (5) The soil must be dry, pure, easily drained, and at least 100 acres shall have good agricultural qualities. (6) An abundant supply of pure water shall be easily accessible. (7) The site must be not more than three miles from a railway station, and not less than one mile from any city or village. (8) It must afford good railroad facilities and be easily accessible from any part of the State. The chart on preceding page is taken from the report of the State Tuberculosis Commission, published the first of the year. This shows roughly the sections of Ohio that are over and those below 1,000 feet in elevation, and in addition some of the small areas that are above 1,200 feet. Less than one square mile is over 1,500 feet above sea-level. This is in west-central Logan County, near Bellefontaine, where one hill rises to 1,540 feet and another to 1,525 feet. At least one-fourth of the State is above 1,000 feet. Of this it is estimated that about 4,000 square miles is in the western half and the balance in the eastern. There are extensive areas in the eastern section rising from 1,200 to 1,300 feet above sea-level. The area of the State is 40,760 square miles, and it is estimated that only 460 square miles is below 500 feet. The lowest point is about 425 feet above mean tide. The mean elevation is probably slightly above 850 feet.

Needs of the Naval Medical Corps.—It appears from the report of Secretary Morton that the Medical Corps of the navy is the only branch of the service in which there are vacancies at the foot of the list comments the New York *Sun*. These have existed for some time, and how to fill them is a difficult problem. There are plenty of applicants for appointments, but their general quality is not what is desired, as is shown by the facts that of ninety-seven physicians who sought admission to the navy last year only twenty-three received commissions as assistant surgeons. The standard set is high. To qualify for the examinations the candidates must not only be graduates of a high-grade medical school, but must have had one year of professional work. But even those who fill these re-

quirements, while equipped for ordinary practice, have, as a rule, no knowledge of the special problems with which they are likely to be confronted in the service. To overcome this difficulty a naval medical school was established three years ago, which gives a six months' course and turns out men well fitted for active duty. Last March it graduated thirty officers and twenty-four are now under instruction. The increasing number of vessels in the navy has increased the demands on the Medical Corps. The difficulty of securing good men is not a new one and from year to year there has been much talk of a remedy, but nothing effective has been done. Surgeon-General Rixey, in his report for the year, emphasizes the needs of his corps and devotes much space to a discussion of its unfilled list. He says that the board of examiners has sat almost continuously, lectures on the naval service have been delivered in the leading schools—in fact, everything possible has been done to get enough high-class men to fill the vacancies, and still the men are needed. "It was thought," says Dr. Rixey, "that the favorable legislation of 1903, giving rank of grade and increasing the number of surgeons and establishing a closer parallelism between the army and navy medical establishments, would so serve to popularize the naval medical service among qualified young professional men as to make recruiting for it an easy matter." But here, too, were disappointing results. The Army Medical Corps is full and continues to draw to it an excellent class of candidates. So it is with the Marine Hospital Service. The medical journals explain this partly by pointing out that the pay of an assistant surgeon of the navy when ashore is 15 per cent. less than that of an assistant surgeon of the army. Again, it is insinuated that the line of the navy has not entirely lived down its old reputation for treating the medical officers ungraciously; that while this reputation is unwarranted, it still exists and exercises a repellant influence. The wars of the last few years, with the one now being waged in Manchuria, have peculiarly emphasized the necessity of the most efficient possible medical corps in both branches of the service, and Congress should by legislation support the efforts of the Secretary and Surgeon-General to secure for the navy a full and efficient medical staff.

Boston Medical Library Society.—The third of the Boston Medical Library meetings held in conjunction with the Suffolk District Branch of the Massachusetts Medical Society, was held Wednesday evening, December 7, at the Library. The subject for discussion was "The Humane Treatment of Malignant Disease from a Surgical Point of View." The paper of the evening was given by Dr. John C. Munro. Dr. Munro made an earnest and eloquent appeal to the medical man and to the general practitioner to get in a surgeon earlier than heretofore before it was too late, and to allow the patient some choice at least in the matter of an operation, whether or not an absolute cure were possible. What might have happened without an operation can never be told but there was always the possibility of making a wrong diagnosis, no matter what the signs were, and a condition no matter how hopelessly malignant it appears, might prove to be benign and quite capable of cure. Case after case was cited to show this, where an apparently hopeless operation had been done merely to alleviate pain and a benign condition found. He maintained that until diagnosis of incurable malignant disease could be definitely and surely made it was safer to operate, after, of course, all other means had been exhausted. To operate when there was a chance to cure the patient without one, he said, was wrong; but to oppose an operation and to allow the patient to die when there was a $^1/_{1000}$ chance of cure was far worse. He next spoke on operations to alleviate suffering, citing cases not of cure but of a happy and comfortable existence for months and years afterward, the patient finally dying of a general toxemia and not of some painful local process. All cases were not fulminating ones, and it was possible to tell to what extent relief might be given. He dwelt especially on the added mental comfort to the patient after an operation and asked why, if all external tumors are immediately handed over to the surgeon, internal ones as well should not be, especially as now in experienced hands the dangers of a laparotomy were so slight.

Dr. R. H. Fitz spoke confining himself to malignant diseases of the stomach. His paper was brief being composed largely of statistics from an article recently published by Dr. Munro, in which the speaker showed that the mortality on so-called exploratory operations of the stomach was very high indeed.

Dr. David Cheever, while admitting that only in rare cases of operating on advanced malignant disease is a cure possible, yet the mental effect on the patient and the relief of suffering makes such operations desirable.

Dr. A. T. Cabot thought that a certain amount of danger to the patient's life was quite justifiable if there was a chance, however small, of marked relief or cure.

Dr. Fred. Lund cited cases illustrative of this same subject in which, while there was no cure, yet there was a very great relief from pain.

Dr. Francis Williams spoke of X-ray treatment as a palliative measure and explained a new device whereby by means of special tubes and plates of aluminum treatment could be given to far deeper growths than possible at present without danger of severe burns.

Dr. H. L. Burrill spoke of the indefiniteness of the term "malignant." He advised leaving the diagnosis to the surgeon if there was any chance of doubt.

Dr. F. B. Harrington thought an early operation really cured in more cases than generally thought and that, owing to the spreading abroad of this fact patients were coming in for treatment much earlier than formerly.

Panama Canal Service.—The United States Civil Service Commission announces an examination on January 18, 1905, to be held in the chief cities of the United States, to secure eligibles from which to make certification to fill vacancies in the following-named positions under the Isthmian Canal Commission on the Isthmus of Panama: Surgeon, physician, pharmacist, hospital interne, trained nurse. The scope and character of these examinations are as indicated below. Each applicant for the Isthmian Canal Service will be required to submit to the examiner, on the day he is examined, a recent photograph, not more than three years old, of himself, which will be filed with his examination papers, as a means of identification in case he receives an appointment. An unmounted photograph is preferred. The date, place, and kind of examination, the examination number, the competitor's name, and the year in which the photograph was taken should be indicated on the photograph. For further information concerning transportation to the Isthmus, conditions

of employment, etc., attention is called to Form No. 1417, obtainable on application.

Surgeons.—Age limit, twenty-five to fifty years; salary, $250 per month. The examination will consist of the subjects given, with the relative weights indicated: (1) Anatomy, 5; (2) surgical bacteriology, 5; (3) surgical pathology and diagnosis, 15; (4) surgical practice, 40; (5) surgical gynecology, 5; (6) practical experience (this element will be rated upon the statements made in the application and accompanying vouchers. Special attention will be given to the quality of the applicant's experience, and applicants who have had extensive work in large hospitals will receive special credit), 30.

It is the desire of the Isthmian Canal Commission to appoint in this position only surgeons of thorough training and wide professional experience.

Physician.—Age limit, twenty-five to fifty years; salaries, $150, $200, and $250 per month. The examination will consist of the subjects given below, with the relative weights indicated: (1) Letter-writing, 5; (2) anatomy, 5; (3) therapeutics, 5; (4) physical diagnosis (including questions relating to tropical disease), 25; (5) general pathology and practice (including questions relating to tropical diseases), 25; (6) bacteriology and hygiene, 5; (7) obstetrics and gynecology, 5; (8) practical experience, 25. The element of practical experience will be rated upon the statements made in the application and accompanying vouchers. Special attention will be given to the quality of the applicant's experience, and applicants who have had experience in hospitals, particularly in the treatment of tropical diseases, will receive special credit. Only those who have had extensive hospital experience and are familiar with the treatment of tropical diseases, will be selected for appointmnt to the highest salaried positions. Promotions may be made in the discretion of the Isthmian Canal Commission from the lower to the higher positions in this grade.

OBITUARY.

Dr. J. F. FISCHER, a native of England and a Civil War veteran, was found dead in his bathrom, at his residence on Ridge avenue, Philadelphia, on December 9. He was sixty years old and enjoyed a lucrative practice until his health failed two years ago. He was graduated from Jefferson Medical College in 1872.

CORRESPONDENCE.

OUR LONDON LETTER.

(From Our Special Correspondent.)

LONDON, November 26.

GENERAL MEDICAL COUNCIL—BRITISH SOCIETY AND GERMAN SURGEONS—ASEPSIS IN THE BARBER'S SHOP—A MEDICAL COLLECTOR'S LIBRARY—DEATH OF A COURT PHYSICIAN—AN ABSENT-MINDED PRESIDENT—AN ECHO OF THE VISIT OF FRENCH DOCTORS.

THE General Council of Medical Education and Registration, which is our professional Parliament, is now holding its eightieth session. The most important part of the proceedings was the announcement by Sir William Turner, Principal of the University of Edinburgh, that he had made up his mind to resign the office of President of the Council which he had held for about six years. The reason assigned for this step is that his duties in Edinburgh are of an onerous and absorbing nature and have their first call on his time and energy. For some months past he has become conscious of the fact that, having entered upon the stage of life which entitles one to be called a septuagenarian, the vital mechanism cannot be driven at the speed, and with the continuity of effort, which was both possible and pleasurable a few years ago. The President would have done better to follow the wise counsel offered to a newly appointed judge, whose knowledge of the law was imperfect, to give his decisions without stating the reasons on which they were based. Sir William Turner's decision does him credit, but the reasons assigned for it make one wonder why it never occurred to him until lately that duties, which ought to have been still more onerous and absorbing than the largely ornamental functions of Principal, were incompatible with those of the office which he is about to resign. When he was elected President of the General Medical Council it was understood that he would resign the chair of anatomy at Edinburgh which he had occupied for many years. Indeed, the fact that he was the incumbent of that chair was held to be an objection to his being put forward for the presidency, and it was only on the understanding referred to that the objection was waived. On his election, however, it became manifest that the "understanding" was in fact, as such things often are, a misunderstanding, and Sir William continued for some time to hold both offices. The explanation given by his friends was that he wished to complete the term of office as professor that would entitle him to a retiring pension. This did not altogether satisfy the objectors, but they had to accept the situation. By the way of making a graceful exit the President has presented a handsome silver gilt mace to the Council. Though he retires from the presidential chair he will continue to be a member of the Council till the end of 1906. He has been a strong President, if not exactly a great one.

A good deal of suppressed indignation is felt among the medical profession here at the removal of Mrs. Arthur Paget, a particular friend of the King, to Berlin for treatment by a German surgeon. In August last the lady fell down the lift in her own house with the result that both her legs were broken. The right was fractured in three places, at one of which union failed to take place. A short time ago Sir Frederick Treves visited her by command of the King. It was proposed to wait for some time and then wire the fragments. Apparently, however, the patient was not altogether pleased with the prospect, for the aid of Professor Hoffa, of Berlin, was invoked. He is said to have "put the broken bones together in two hours while the patient was under chloroform." Mrs. Paget has now gone to Berlin to be under his treatment. The case is boomed somewhat in the daily newspapers as a triumph of "bloodless surgery," and Professor Hoffa himself is described as "a German bonesetter." Evidently it is this "bonesetting" reputation that makes English Society believe in him; when they find out that he is only a scientific surgeon and a genuine professor in the Medical Faculty of a great university, they will probably lose faith in his thaumaturgic powers. The British profession does not grudge Hoffa his reputation as a "bonesetter," but our surgeons are not unnaturally somewhat nettled that it should have been thought necessary to take the patient to Germany. It is by no means a solitary instance. The members of the "upper ten," and those who

wish to be thought to belong to that class, flock to Pagenstecher when they have anything the matter with their eyes. The fact is that the fashion has been set by the Court which has an unpatriotic preference for German doctors. The Princess Christian loses no opportunity of sounding the praise of Pagenstecher and other Germans, and Society follows her like the little lamb that went after Mary in the nursery rhyme. She got Pagenstecher to see Queen Victoria; but, to prevent an outcry, he was ushered in by the backstairs. There are two Germans on the small committee appointed by the King to organize the sanatorium which is to be built and the money supplied by Sir E. Cassel, another German; and the physician selected by the committee for the post of Medical Director of the institution is a German. Altogether it is felt that in the sphere of medicine our Royal Family, in accent as in other ways, is more German than English.

The public Health Department of the Corporation of the City of London, after careful consideration of the dangers of septic shaving, has, in conjunction with the Incorporated Guild of Hairdressers, strongly urged the City Fathers to regulate the sanitary conditions of barbers' shops. The following proposals have been laid before them: (1) All shelves, fittings and tables on which instruments are placed to be of glass, marble, slate or other similar material. (2) Clean towels, etc., to be used for each customer, and a fresh piece of paper or clean linen to be placed on the back of chair or head-rest. (3) No general powder-puffs to be used, and powder pulverizers or cottonwool substituted. No sponges to be used. (4) All hairclippers, razors, scissors, combs, or other tools, after use, to be placed in a disinfecting solution. (5) Razors to be wiped on paper. (6) Perfect, clean hairbrushes only must be used. (7) Shaving brushes after use to be placed in a disinfecting solution. (8) Cut hair falling on the floor to be immediately swept up and removed and floors to be cleansed daily. (9) No general styptics, as alum crystals or blocks to be used, nor powders nor liquids applied on a towel or cottonwool, or by spray. (10) The most scrupulous cleanliness to be observed in all that pertains to the business.

In addition it is recommended that regular customers should be strongly advised to provide their own toilet articles—razors, brushes, etc.—which would be exclusively reserved for their owner's use; that all cut hair and paper should be burned; and that no customer apparently suffering from any skin or hair affection should be attended to save at his own house or offices, or in a private room. A further proposition provides for registration. This means that all barbers complying with these regulations will have a certificate to the effect that they are "fit and proper persons" to undertake the removal of superfluous hair with safety to the customer. Dr. Collingridge, the medical officer of health of the City of London, says disease is spread to a large extent through the "penny shaves," and it is to control these that the movement has been initiated.

The late Professor W. H. Corfield was best known to his professional brethren throughout the world as a leading sanitarian. To a smaller circle he was known as an enthusiastic collector of books, and especially as a connoisseur of bindings. To any one interested in his "hobby" he was always pleased to show his treasures, and he was a most interesting *cicerone* for, unlike many bibliomaniacs, he knew the inside as well as the outside of his books. He would even lend them for months together to a friend who wished to use them for literary purposes—surely a stretch of liberality almost unheard of in a collector. Part of his library was sold a few months ago for $3,500. The choicest part of the collection has been disposed of this week and brought over $25,000. It is considered doubtful by experts whether any other private collection comprised so remarkable a series of English bindings. Each book in Dr. Corfield's library was selected to exemplify in some way or another the art, workmanship, or development of bookbinding, and many of the volumes were in the Burlington Fine Arts Club Exhibition of 1891. Dr. Corfield was one of the few collectors who made a specialty of bindings, and many of the books which have just been sold realized far more than they cost him. In one instance, a volume, acquired at an auction sale for $25, realized $630. This is an extreme instance, but on the whole a very handsome profit has resulted from the doctor's "hobby."

Dr. G. Vivian Poore, who died a few days ago at the age of sixty-one years, was for some years the physician and the trusted friend of the King's younger brother, the late Duke of Albany. The Prince was a "bleeder" and required constant medical supervision. The late Sir William Jenner's life was for some time made a burden to him by incessant calls to attend the royal patient, who could hardly move without hemorrhage taking place into a joint. Jenner handed the Prince over to Poore who thus got an introduction to the Court which afterward stood him in good stead. Poore was a man of polished manners and an excellent all-round physician. He dabbled in several specialties—electricity, laryngology, neurology, and forensic medicine, and wrote more or less valuable treatises on all of them. He was emeritus professor of medicine in University College, and physician to the hospital attached thereto. As a sanitarian he was something of a heretic on some points. He would denounce cremation, not on religious but on scientific grounds, as a wanton destruction of the best natural manure. He had strong opinions as to the disposal of human excreta, which he held should always be applied to the fertilization of the soil. He had a garden in the suburbs in which he grew very fine vegetables by this method, and he claimed to get marvelous results from the same system on a small estate which he possessed in Hampshire. He was a charming man with whom even the most aggressive and self-assertive of colleagues must have found it difficult to quarrel; this was not due to any weak amiability in Poore but rather to a genial cynicism which prevented his taking himself or any one else too seriously. All Poore's writings are marked by sound practical sense and withal are eminently readable.

In a new edition of the letters of Thomas Gray, poet and naturalist, which is now in course of publication, a curious story is told of the absent-mindedness of a former President of the College of Physicians, by which that institution lost a great public trust that would have given it a much higher position in the public eye than it now holds. It appears to be only by accident that the great anatomical, pathological and zoological collection gathered by John Hunter, which formed the basis of the famous Hunterian Museum of the Royal College of Surgeons of England, came to be under the con-

trol of that body. By his will Hunter directed that his collection should first be offered to the British Government on reasonable terms; if it declined to buy—and it was a time when British Ministers thought far more of cannon than of scientific collections—the museum was to be offered to some foreign State or otherwise sold in one lot. With some difficulty the British Government was induced to purchase the collection for $75,000. It is said in the publication mentioned above that the Government invited the Royal College of Physicians to be the conservators of the collection. The offer was made through Dr. Thomas Gisborne, at that time President of the College, who put the letter conveying the proposal into his pocket and forgot all about the matter. After a time the Government, concluding that the College of Physicians did not wish to have anything to do with Hunter's specimen's, transferred the offer to the College of Surgeons which at once accepted the trust. Its enterprise has been largely rewarded. Without its Museum the dingy institution in Lincoln's Inn Fields would be nothing but a not particulary high class diploma shop.

The following incident is said to have occurred in one of the largest of our hospitals during the recent visit of the French doctors. A probationary nurse, hearing one of the gentlemen discoursing French very fluently, went up to him and rattled off an eloquent description of the most notable features of the hospital. "Most interesting, nurse! But I speak English too, as I am the Senior Surgeon of this hospital."

SOCIETY PROCEEDINGS.

CHICAGO ORTHOPEDIC SOCIETY.

Regular Meeting, held October 25, 1904.

The President, Arthur B. Hosmer, M.D., in the Chair.

Case for Diagnosis.—Dr. M. L. Harris showed a little girl, five years of age, who, when about two years of age, was taken sick. She had been well and healthy up to that time. According to the mother's statement, the child was quite sick, and remained in bed for several weeks. This was as much of the history of the case as he could elicit from the parents. There were no local symptoms about the knees, nor anything to call the attention of either parents or physicians to them. While the child was in bed the legs were gradually flexed, and when she recovered from her sickness the knees remained sharply flexed. No effort was made to extend them. Nothing was done to the legs while the child was in bed. No effort was made by the parents to extend the knees until about six months ago, when the child was brought to the city from the country and admitted to the Children's Hospital. The child was well in every way when she came to the hospital, with the exception that both legs were very sharply flexed beyond a right angle. There was no tenderness about the knees; there was no paralysis about the legs; no paralysis about the feet. The calves are all right, also the thighs. There was a little range of motion in the knees, but they could not be extended. There was apparently an enlargement of the lower ends of the femora. He put the child in bed, and extension was made in two directions. He made a trough-splint, fitted it upon the posterior surface of the leg, and attached a cord to each end and over a pulley so as to draw directly against the entire extent of the leg posteriorly, with extension also in the direction of the leg. He made quite rapid progress up to a certain point, when further extension ceased to make any improvement. Then he used force to complete the extension and applied casts. He was unable to extend the knees fully by force. After the application of force two or three times, gaining some each time, he used Ryerson's genuclast, and under anesthesia was able to get almost complete extension. This was done about four weeks ago. The legs were kept in casts until this morning. He thought the child would get motion in the knees, sooner or later. He bent them this morning far back, but it caused considerable pain. The question arises, what was the trouble with the child in the first place? Was it disease affecting the knees, or were the knees drawn up simply from the position in bed? Another question which arises is, whether in limbs so sharply flexed for so long a time the lower ends of the femora enlarge out of proportion to the rest of the bone? There does not seem now, nor has there been, any trouble with the knees. The question of enlargment of the bone, when pressure is removed, is a disputed one. If we were to amputate at the knee, the lower end of the femur would not enlarge out of proportion to the rest of the bone. The author stated that the case was not one of poliomyelitis, as there had never been any paralysis of the quadriceps muscles. There was no evidence of spastic paralysis. Dr. Harris believes the inability to extend the legs is due to the condition of the soft parts. He does not think it is due to the condition of the soft parts. He does not think it is due to contraction, but to failure of development of the soft parts, particularly the lateral and posterior portions of the capsule. When the leg is flexed, the attachments of these portions of the capsule are approximated, remaining in that position for some time until in the process of development they simply fail to develop and offer an obstacle to extension. The lower end of the left femur is larger than it ought to be, but whether there is a disproportion in size as compared with the upper end of the tibia he did not know. If there was, it must be due to the fact that it has enlarged for want of pressure. He could not see any other reason for it. It was difficult to say whether it is enlarged or not. He did not think this enlargement was the main obstacle to extension, but the failure of development of the soft parts. He looked upon the case as one of postural disease or postural deformity primarily while the child was sick, and after she was well no attempt was made to extend the knees to the natural position.

Extensive Osteomyelitis of Femur Healed Without Operation.—Dr. Frederick Cleveland Test showed an interesting case of extensive osteomyelitis of the femur that had healed without operation. The patient, fifty-two years of age, a physician, had been for the greater part of his life an athletic man. He had had the usual diseases of childhood and adolescence, yet in spite of these indulged a great deal in athletics. Twenty-one years ago, in the Schwatka Expedition to Alaska, he was one of some forty-nine, out of the party of sixty-three, who had the scurvy. During the attack, which lasted ten months, patient was run down and covered with ulcers, which persisted for nearly a year. Following this he gave up his medical work almost entirely, and devoted himself to exploring, as a

naturalist and geographer. This exposed him to a great many vicissitudes. He had two or three attacks of malaria; he had dengue; he had yellow fever. These diseases were mentioned because many of them, if not all, are what might be called blood diseases. At any rate, the blood is affected in all of them. Following the scurvy he had pyorrhea alveolaris, which still persists, but is less marked than it has been in previous years. About six and a half years ago he was in the prime of manhood, weighing about 180 pounds, at which time he fell and struck his right knee. In the course of a few hours the knee became very much swollen, tender and painful. Eventually, it measured twenty-eight inches in circumference. The patient was seen by several practitioners in New York and Philadelphia, among them Drs. Bull and Abbe. Dr. Abbe had even appointed a day for amputating the leg. The patient was also seen by Dr. W. W. Keen, Dr. J. William White, and the late Dr. de Schweinitz, of Washington. The diagnoses varied from syphilitic infection (of which there is no history obtainable) to osteomyelitis, and one practitioner made a diagnosis of tuberculosis. The leg remained swollen, although not discharging, yet evidently full of pus, for about two and a half years, when, after a slight injury, it opened and for four years discharged copiously. At one time there were twenty-two sinuses. When Dr. Test saw the case professionally, for the first time, in the latter part of last February, there were eighteen discharging openings, some of which were sinuses from the bone, and others ulcers on the surface. Patient consulted the speaker, not so much for the condition of his leg, which he deemed incurable, as for a distressing dyspnea, which for months had been affecting him. This interfered with his comfort more than anything else. The leg was discharging so that during the day, in spite of copious dressings of cotton and gauze, it would frequently almost fill the shoe, even though it were dressed twice a day. Within a few days he gave the patient extract of bone marrow, after having made a diagnosis of apparent osteomyelitis. The bone marrow was given in the hope of having a double effect, one of helping the bone to regain its normal condition, and the other of building up the much depleted blood. At that time the hemoglobin percentage was under 55. The hemoglobin soon increased rapidly. The patient had a considerable amount of cough, with a great deal of mucous râles. No tubercle bacilli were found present in the sputum. There was considerable dulness over the left side, which was attributed by some of the consultants to empyema. Personally, he thought it was an enlarged spleen. The leg began to improve. The local treatment he gave the leg was hydrogen peroxide, and in addition he applied one of the organic stearates, prepared for him by a chemical acquaintance in the University of Chicago. The stearate was made up from one of the phenyl group, and it acted in this case wonderfully. He thought the extract of bone marrow given internally was what gave the leg its impetus toward healing, although the stearate undoubtedly had much to do with it. After four months from the time of beginning of treatment the leg was practically entirely well. The dyspnea, however, continued to grow worse.

Patient was seen by several internists in this city, and with one exception their diagnosis was that of probable pulmonary tuberculosis, which the clinical condition seemed to bear out, and upon which theory they explained the dyspnea. Dr. Test's own final theory was that of a neuritis of the pneumogastric nerve produced by the long-continued sepsis, because this nerve was inhibitory, and the man's respirations were greatly increased. Furthermore, it supplies the inferior constrictor of the pharynx, and as the pharynx at that time had spasmodic contractions, its innervation was unquestionably interfered with. One consultant, who made a diagnosis more nearly like that of Dr. Test, said that in his opinion there was no pulmonary tuberculosis present, but that the trouble was probably due to some neoplasm of septic origin in the mediastinum, pressing upon the nerves there, and particularly upon the pneumogastric, and therefore advised the use of iodides. Iodides were employed, but no marked improvement seemed to result, although the patient was easier under their administration. The dyspnea rapidly increased until the patient was breathing sixty or seventy times a minute, and unable to take more than two or three steps at a time. He went to bed, and was semi-delirious for two weeks, during the end of which time Dr. Test began the use of hypodermic injections of nitrate of strychnine, in doses of one-thirtieth of a grain, twice a day, as a last resort, acting on the theory that it was a neuritis. To his delight the patient began to improve from the first day, certainly inside of the first three or four days, until, in about two months, the leg having healed meantime, his dyspnea was entirely relieved, so that now he is once more practically a well man.

NEW YORK OBSTETRICAL SOCIETY.

Stated Meeting, held October 11, 1904.

The President, G. W. Jarman, M.D., in the Chair.

Three Ovarian Cysts with Twisted Pedicles—Two Complicating Pregnancy; Two with Intestinal Obstruction.—Dr. A. Brothers presented the following tumors: (1) A cystic tumor that he had removed from a multipara, twenty-seven years of age, whose menstruation had stopped three and one-half months ago. There had been bleeding for three weeks prior to her admission to the hospital; with some pain in the inguinal regions. An unsuccessful attempt was made to prevent an abortion which occurred one week later. While making an examination under anesthesia two weeks afterward, and immediately before a contemplated trachelorrhaphy a cystic tumor in the right side of the pelvis of about the size of a full term fetus, was discovered. Immediate laparatomy showed the presence of a parovarian cyst, the pedicle of which had undergone 3½ twists. The tumor, though situated in the right side, was found to rise from the left appendage. There were no evidences of disturbed circulation. (2) The second tumor was removed from a single girl, twenty years of age, whose menstruation had stopped. The presence of a suprapubic tumor had excited suspicions of a possible pregnancy, although it was finally fairly excluded from the absence of other symptoms. After a short period of observation, symptoms of intestinal obstruction appeared, which were relieved by rectal enemata. A cystic tumor could now be definitely outlined, the pedicle of which was probably twisted. Its removal was postponed for a few days on account of a calomel stomatitis. The operation revealed a parovarian tumor of the size of a cocoanut, situated in the right side of the pelvis. Its surface was black, and its pedicle, consiting of the broad ligament, presented a

twist of 180 degrees. There were evidences of a recent peritonitis. (3) The third specimen was removed from a multipara, twenty-six years of age, who in February, 1904, had an attack of right lumbar pain that suggested renal colic complicating an early pregnancy. Menstruation did not stop entirely until after May. In August, while away in the country, severe symptoms of intestinal obstruction appeared, which were not relieved by medication for four days. She was then sent to New York and a diagnosis of peritonitis, intestinal obstruction and full term pregnancy was made. Enemata relieved the intestinal obstruction the first night she was at the hospital. A few days later, because of persistent pain, labor was induced after forty-eight hours by use of a Barnes bag, and a four months' decomposed fetus was removed. A large cystic tumor could now be felt in the right side of the abdomen. Three weeks later a laparotomy revealed a large ovarian cyst weighing three kilos that was adherent to intestines, omentum and appendix. The pedicle, which also ran over to the left uterine horn, showed a twist of more than 360 degrees with signs of beginning spontaneous amputation. The appendix, which was thickened and showed inflammatory changes at its tip, was removed. The ovary of the other side, which was enlarged, was also removed.

Dr. Joseph Brettauer, in the discussion, said that these cases are of rather frequent occurrence, and if they happen to be on the right side, are often mistaken for acute appendicitis.

Dr. J. Riddle Goffe thought that the description of the third case and the microscopical appearance of the specimen did not justify the removal of the second ovary.

Dr. J. N. West, who was present at the operation, stated the ovary was three or four times the size of a normal one, and, in view of the fact that ovarian cysts so often develop from apparently healthy ovaries, when there is a cyst of the other side, he thought its removal was a wise procedure.

Dr. H. N. Vineberg recalled two patients in his service at Mount Sinai Hospital, who had been admitted to the medical division with a diagnosis of acute obstruction of the bowels. They were recognized by the house physician, who had already served on the gynecological division, as typical cases of ovarian cysts with twisted pedicles. Acute obstruction seems to be a common symptom of this condition.

Dr. A. M. Jacobus stated that he had seen a number of ovarian cysts with twisted pedicles. Two were large dermoids; one of which had been diagnosticated as a malignant tumor of either the caput coli or the omentum; the other as a pregnancy. He had seen both of these cases before the twist occurred, and the twisting had been followed by a distinct dimunition in the tension of the tumor in each case. Both occurred in single women, and one gave a history of amenorrhea. The tumors were centrally located, giving the sensation of ballottement and thus simulating a pregnancy of about five months.

Dr. E. B. Cragin wished to call attention to the likelihood of the pedicle assuming a twist after delivery in a case where such a tumor complicates pregnancy. He had seen such cases at Sloane, in which as the uterus involuted and the cyst had more room, a twist of the pedicle occurred.

Eclampsia in New-Born Twins.—Dr. Joseph Brettauer narrated the history of a case of intrapartum eclampsia, occurring in a patient, forty years of age, who had three difficult labors because of a contracted pelvis. The pregnancies and childbeds had been normal. A severe eclamptic seizure occurred without premonitory symptoms, followed in two hours by another. Coma followed with deep cyanosis and a tense pulse: rate 140. The urine was scanty, loaded with albumin, hyaline and granular casts. The irregular shape and large size of the abdomen suggested twins but only one fetal heart could be heard and palpation showed no other signs of a twin pregnancy. The cervix, which admitted three fingers, was manually dilated and the forceps easily accomplished the delivery of a deeply asphyxiated child in the L.O.A. position. A few minutes later another child presented by the breech and was also asphyxiated when delivered. Both children, after long and vigorous efforts, were resuscitated, although the breathing of the second one was always superficial. Six hours after delivery the first child had a severe and typical eclamptic seizure, which was followed during the next ten hours by four others of less severity. During the intervals the child breathed well, and showed no other symptoms. It took nourishment that was administered with a dropper twenty-four hours after birth without vomiting. The second had to be constantly watched from the moment of birth, as its respirations remained very superficial, and at times would altogether cease, so that artificial respiration had to be practised. Eight hours after delivery a mild but typical convulsion occurred, which was followed by nine others at intervals from fifteen to thirty minutes. After the last one it died. The mother had no more convulsions, but consciousness did not return, nor did the urine show any marked improvement, until three days had elapsed. The first child was then put to the breast and both mother and child progressed satisfactorily. Dr. Brettauer reported this case in order to elicit discussion as to the frequency of the occurrence of eclampsia in the newly-born of eclamptic mothers, as this, the first such case in his own experience. Although the head of the second child was not opened, he did not hesitate to exclude the possibility of an intracranial hemorrhage as the cause of the convulsions.

Dr. E. B. Cragin, in the discussion, said that in every large maternity hospital cases of eclampsia in the child, both ante and post partum, occasionally occur. Last year, at the Sloane, one child had an eclamptic seizure before delivery, as was shown by the contractures of the child, which was stillborn, and he was able to recall at least two others in which seizures occurred subsequently.

Dr. Geo. L. Broadhead's experience was similar to Dr. Cragin's. He thought that even if the head in the second child of Dr. Brettauer's case had been opened no light would have been thrown upon the case, as an intense and extensive congestion of the brain and meninges is a lesion common alike to asphyxia and death from convulsions. These children were certainly susceptible to the toxic influence of the maternal blood and the probabilities are that the convulsions were of eclamptic origin.

Dr. William S. Stone reported a case of eclampsia, occurring in a single girl, whose child breathed a few times during the extraction of the after-coming head and then succumbed. The autopsy showed a marked hemorrhage in the peritoneal cavity, which had come from a rupture of the liver. Sections of the liver showed those typical areas of necrosis that are now beginning to be recognized as the important lesions of eclampsia. He would corroborate Dr. Cragin's statement as to the frequency of such symptoms and lesions in children born of eclamptic mothers. He could recall other cases in which, although convulsions did not occur, marked jaundice was present.

Dr. J. Clifton Edgar said that in some of these cases

the mother may not be distinctly eclamptic, but may show symptoms of toxemia. He had seen one case with Dr. Jacobi, who thought the repeated convulsions were due to a cerebral hemorrhage, but complete recovery occurred and no after-effects on the musculature or ocular symptoms were left. Another child, apparently well when born, developed a severe coma in forty-eight hours. After repeated irrigations of the colon the symptoms disappeared and a final diagnosis of toxemia was made. In neither of these cases were the mothers eclamptic. One of them had been careless about her diet during the pregnancy and the urine contained albumin. The other case had jaundice and headache.

Congenital Atresia Hymenalis.—Dr. J. Riddle Goffe reported the following two cases of this condition: *Case I.*—A colored girl, nineteen years of age, had a distention of both the uterus and vagina from the repeated discharge of menstrual blood. The cornu of the uterus was involved to such an extent that by inverting the thin and flabby fundus, so that it presented at the vulva, the openings of the tubes could be distinctly seen, and were patulous for some little distance.

Case II.—A single girl, twenty-one years of age, had never menstruated, but had always been well and strong with the exception of periodic attacks of pain and discomfort since she was thirteen years of age. For the first three or four years these attacks occurred every four to six weeks, lasting a week, and were at times severe, accompanied by dizziness and spots before the eyes. They have been less severe and regular during the past four years, but every month she has suffered from malaise and headaches. She was well-developed with well-formed breasts. The lower abdomen was enlarged in the median line and a rounded mass presented the labia minora, which proved to be an imperfect hymen, bulging from the pressure of retained fluids. By rectum the vagina was found to be distended in all directions, so that it practically filled the pelvis up to the sacral promontory. An irregular summit of this tumor represented the uterus. The patient, by straining put the bulging tumor on the stretch so that without anesthesia a knife was plunged into one side and withdrawn so as to cut the hymen transversely, without causing much pain or hemorrhage. About a quart of dark, grumous blood, not coagulated and odorless, spurted out. Digital examination showed that at the upper end of the overdistended vagina, the cervix was also dilated almost to the diameter of the vagina, forming a sort of ring or band around its circumference. The canal of the uterine body was also dilated so that its wall was as thin as that of the vagina. No opening into the tubes could be appreciated by the finger. The entire cavity was irrigated with bichloride and salt solution and the patient discharged with instructions to use no douches, but to keep the external genitals scrupulously clean. These two cases of hematocolpos and hematometra suggest the problems that arise in the study of the formation of the vagina and hymeneal membrane. Ballantyne suggests the extreme probability that many of these cases are really examples of atresia of the vagina, from some of the records in which the presence of hymeneal membrane was hidden by the projecting vaginal sac. The toughness of the membrane in the second case suggested this condition, but no duplicate membrane could be found. A modification of the usual definition of menstruation as a bloody discharge from vagina, is suggested by such cases, as all of the essential factors in the menstrual function occurred without elimination from the body of its useless products. Howard Kelly calls this apparent amenorrhea, amenorrhea paradoxica.

Dr. E. C. Savidge, in the discussion, asked if the capacity of the vagina and the uterus had been enough to accommodate all the output of the repeated menstruations, or did the patient give a history of nosebleeds? He had seen a similar condition in which the patient bled regularly from the nose, although the atresia had been relieved. The uterus, however, is small and amenorrhea is still present. Such cases seem to answer the question, whether menstruation is the relief of a systemic or local condition.

Dr. H. N. Vineberg presented a drawing made from a patient, twenty years of age, who had never menstruated, but had had no symptoms. Two cystic swellings, resembling large tubal tumors presented, which proved to be the distended vagina bulging in front and behind the uterus. It was apparently normal. A part of the vaginal wall was eroded and discolored and did not disappear for some time after the excision of the hymen.

Dr. E. E. Bull recalled one example of this condition in a girl, eighteen years of age, who had never menstruated. The tumor reached above the umbilicus but consisted simply of the distended vagina. The uterus was apparently normal and menstruation has occurred regularly since the operation.

Dr. A. Brothers recalled three examples of this condition and thinks it is not so extremely rare. He keeps his patients in bed after such an operation.

Dr. Goffe, in closing, said that his patients had not had any vicarious menstruation. It seemed to him that the great pressure had so changed the endometrium that there was little danger of absorption, provided nothing was put into the vagina. He had only seen these two cases.

Further Results in the Use of the Modified Champetier de Ribes Balloon.—Under this title Dr. James D. Voorhees read the paper of the evening. He first noted the increasing number of difficult and operative labors, especially in large cities, due in part to late marriages, as in older primiparæ the soft parts were more rigid, the joints firmer, the bones of the fetal skull were harder, and the uterine contractions were weaker; due also to the mode of life and surroundings of women in the large cities. For the purpose of starting labor, of strengthening the pains and of assisting the dilatation of the cervix, he considers the use of the conical rubber dilator to be of more value than anything else. As in his first series of cases in the service of the Sloane Maternity Hospital, the dilators employed were the Champetier de Ribes, modified in such a way as to be stronger and thus to withstand the uterine and abdominal contraction, to resist the tension when filled with fluid, and to permit of a certain amount of traction without rupture. For this purpose there is a foundation of thin canvas instead of silk, covered by thicker rubber and firmer seams, especially where the tube joins the ampulla. Anesthesia is only used for their introduction, when a preliminary divulsion is required, or when the cervix is high, or if the patient is nervous and sensitive. Ordinary sponge forceps and a Davidson syringe are the only instruments required. The largest bag possible is used at the outset, and slowly inflated with slight traction so as not to displace the presenting part. His present series of cases are taken from 200 patients in his private practice and from 4,272 deliveries that have occurred at Sloane since the publication of his first series. From these two series of cases he concludes: (1) That the best artificial hydrostatic dilator of the cervix is a modified Champetier de Ribes balloon, because it is most like nature's bag. At Sloane it has been used 260 times to 73 manual dilatations, and in his

private cases as often as one in every five deliveries. (2) In dry labor by hastening the dilatation and by preventing the further escape of liquor amnii, fetal mortality is diminished. (3) In protracted labors, even when there is some obstruction, by shortening the first stage, the patient is less exhausted and better able to withstand operative procedures. (4) For inducing labor, it is the best method, it is successful where the bougie has failed, unless anesthesia is contraindicated in a case in which the cervix is long and undilated. A combination of both the bougie and bag is valuable, as used by Cragin and Norris. It is especially useful in cases of contracted pelvis, and in eclampsia, can be used oftener than is generally thought, thus avoiding the lacerations and mortality not uncommonly the result of accouchement forcé. (5) In placenta previa, especially the marginal variety, it will also avoid the lacerations of the uterus that are so commonly the cause of death and will lessen the fetal mortality.

Dr. Broadhead, in the discussion, stated that he had made extensive use of these balloons for the past five years and had found them to present all of the advantages that Dr. Voorhees had mentioned. He also was in accord with the opinion that they, combined with medical treatment, give better results in cases of eclampsia with an unyielding cervix than does accouchement forcé.

Dr. J. Clifton Edgar recalled how much better the original Champetier de Ribes bags were than either the Barnes' or McLean's modification, but in a short time their objectionable size was modified by one of the assistants in the Tarnier pavilion. Thus modified, he had used these bags satisfactorily for a number of years, although in one case the fetal head was displaced. It has largely taken the place of bougies in his own practice, although he still uses the latter in some cases to stimulate pains, and in some instances supplements the use of the bag with them, as Dr. Cragin does. He had employed them in the marginal variety of placenta previa, but would hesitate to do so in the central type, preferring to pack the cervix and vagina with sterile gauze, thus allowing the cervix to soften sufficiently to do a manual dilatation without danger of rupturing the uterus.

Dr. Franklin A. Dorman said that in teaching graduate students, whose previous practical experience had taught them the difficulties of treating a rigid cervix, eclampsia and placenta previa, he had noted the enthusiasm with which they received the description and method of introducing of these bags. In placenta previa of the central type he considers the use of these bags to be the most conservative method—with the exception, perhaps, of Cæsarean section—but does not agree, however, with the statement of Dr. Voorhees that the largest possible bags should be introduced at once. By using a small bag placenta is exposed more gradually and the danger of hemorrhage is minimized. He had seen the fetal head displaced when too large a bag was used, and in some instances the membranes have ruptured and the cord has prolapsed; and he has also seen the cervix torn when they were unskilfully introduced, but such accidents should nor occur if they are carefully introduced, and should weigh very little against their use.

Dr. Robert A. Murray agreed with the treatment of Dr. Edgar for central placenta previa. He sometimes used the Barnes' bag or a Champetier de Ribes after the cervix has become softened from the use of gauzes. He thought that, even after a severe hemorrhage, immediate delivery is often unnecessary, if the extremities are bandaged, the patient is elevated and saline infusion is used.

Dr. W. S. Stone thought the paper of Dr. Voorhees demonstrates that obstetrics is a scientific branch of medicine, which every one cannot practice equally well. He thought that the introduction of these bags required some skill and for one familiar with their use there would be considerable risk in injuring the cervix, although he did not bring this up as an objection to their use, but only to emphasize the point that special skill is required to practice scientific obstetrics.

Dr. Voorhees, in closing the discussion, said that a displacement of the fetal head had occurred in a few instances, in which a large bag was introduced and dilated too rapidly. Where haste is required and you have not the bags at your command he considers tamponing a suitable measure in dealing temporarily with placenta previa. He has seen a few cases of prolapsed cord in which the introduction of the bags was improperly managed. He agrees with Dr. Murray that one should often depend upon the softness of the cervix rather than the amount of dilatation. In regard to the size of the bag it was a general rule to use the largest bag possible.

BRITISH MEDICAL ASSOCIATION.

Seventy-second Annual Meeting, held at Oxford, England, July 26, 27, 28 and 29, 1904.

SECTION ON PSYCHOLOGICAL MEDICINE.

(Continued from Page 1008.)

"Insane or not Insane" not Biological.—Dr. David Yellowlees (Glasgow) asserted that the legal principle "insane or not insane" was untrue to nature. There was no such definite and absolute division. Humanity stood on a great slope. On the top were the sane, stable, reasonable, self-guiding people; at the bottom were the idiotic, the hopelessly demented, and deluded. On the slope, and at varying heights on it, were many persons defective according to their height on the slope; their mental stability, knowledge, judgment, power of self-guidance and self-control were, in varying degrees, less than in ordinary sane people. Whatever the law might say, those persons on the slope must be dealt with specially. They were not like other men, and when they committed crime they should be judged more leniently and punished less severely (if at all), according to their position on the slope. There had been at least three cases in the Scottish law-courts where this principle had been acted upon, and in which punishment was mitigated on account of the mental deficiency, and sentence of death was not abrogated, but commuted to penal servitude for life. A course of insanity, with clinical teaching, should be made part of the legal training.

Degeneration—What is it?—Dr. Conolly Norman (Dublin) drew attention to the fact that the modern Continental theories of "degeneration," which have never found much favor in England, were singularly different from the doctrines laid down by Morel in his original treatise. He proceeded to comment on the violence which often (happily not to-day) characterized the discussions on this subject. It seemed to him that there was a tendency to obsession both on the part of the physicians and the lawyers—one side oppressed with the fear lest those of unsound mind might be unjustly and cruelly punished, the other lest wicked criminals should escape their merits through the machinations of foolish doctors. He listened with surprise to Sir Herbert Stephen's

letter because, as the speaker understood the statement, his "class three" was so constituted as to include every case in the least degree doubtful, and the great majority of those cases in which any question could arise. The speaker believed in the solidarity of the mental functions, and did not at all consider that the fact that a man understood the nature and qualities of the acts he performed carried with it responsibility. They could not separate the will from the other functions, or refuse to allow of its existence at all, as Hobbes did when he called it merely the latest motion in deliberation. As to the question of responsibility in court, the speaker held that this was not a question for the physician, and pointed out that Griesinger had long ago laid down this maxim, and had acted upon it when called upon for his opinion on this point. With reference to impulse, this plea had, of course, been abused, but he was glad to see that Dr. Mercier had clearly recognized that there was a distinct condition of impulse. Every clinical observer knew that this state had its very distinct and recognizable mental and even physical symptoms, and that the condition could rarely or ever be doubtful.

Others who read papers on allied topics were Dr. E. S. Talbot, of Chicago, J. Beard, of Edinburgh, and W. König, of Berlin, who gave masterly addresses on Heredity.

Dementia Præcox.—This paper was read by Dr. Conolly Norman, of Dublin. He said in recent years the doctrine of "precocious dementia," as deduced from the later works of Professor Kräpelin, of Munich, has acquired a great vogue. Its author, during the long period when he filled the Chair of Psychiatry at Heidelberg, attained the highest eminence as a teacher and as a writer. His work in psychophysics has much enhanced his reputation for exact observation. Even the fact that the successive editions of his text-book contain variations and modifications of former views very unusual in such volumes has only served to increase the confidence felt in his frankness and good faith. His theories as to classification have been very generally accepted in Germany, France, and Italy, and have attracted much attention in America. It is true that in England they have been comparatively little noticed, but that is probably less due to any feeling of their unsoundness than to the very general neglect of the progress of clinical psychiatry which has prevailed of late years in this country. The existence, either as a distinct entity (which Kräpelin does not affirm, though some of his followers do) or as a practically useful homogeneous clinical group, of any condition which can be called by the name "dementia præcox" does not, in his opinion, admit of proof, and is, therefore, here disputed. The collective grouping of hebephrenia, katatonia, and the paranoid forms makes so vast a congeries that it is impossible to perceive any connecting link between the items of the mass, save in their origin at the age of adolescence and in their supposed unfavorable termination. So much is endeavored to be put within one loose definition that the continent bursts and the contents escape from grasp.

The two first forms—katatonia and hebephrenia—seem to him to have considerable value as types of mental disease. Well-marked cases have, as all recognize, very remarkable facies. It does not detract from their value as types that they run into each other. A good case of katatonia seems at first slight to distinct, by its mental and physical symptoms, that we feel almost compelled to believe that here at least we have a specific disease. The studies of Bruce and others point strongly in this direction also; but our arrival at this conclusion is barred by the difficulty which intermediate forms interpose—forms that are many times more frequent than the pure and typical cases. The very term "dementia præcox," applied in common to affections such as katatonia on one hand, and, on the other, those forms of chronic delusional trouble which need much refinement to distinguish them from ordinary paranoia, would seem to indicate that the striking mental and physical features of katatonia are not sufficient to constitute it a separate disease. The same may be said of hebephrenia. While its exquisite forms seem to establish at least a remarkable type, its margins are so indefinite that it eludes satisfactory definition.

Paranoid Forms.—But the chief difficulty in the clinical comprehension of dementia præcox is to be found in the paranoid forms. There is absolutely no criterion whereby one can distinguish these from paranoia unless one suddenly drops the method of inclusion which has been followed, and reverts to the method of exclusion, holding that nothing can be called paranoia except the most exquisite pure and typical cases. This, however, will hardly save us from the followers of Kräpelin, one of whom has not long since, in the *Zeitschrift f. Psychiatrie*, freshly described at great length a case given by Kräpelin in his clinical lectures as an example of paranoia; but the disciple has outrun his master, for in commenting on this case he submits the view that it is really an example of precocious dementia. Even Lugaro exhibits the same tendency and makes a remarkable deduction in recently describing a case of an elderly man who, after an attack of depression with attempted suicide and consequent trauma capitis, became liable to recurrences of delusions of persecution associated with auditory hallucinations. This case Lugaro seems to consider was probably one of precocious dementia. It is difficult to see what value is to be attached to a term so loosely used.

With regard to origin at the adolescent period, the peculiarities of cases which begin at this epoch are largely the physiological characteristics of a particular period of mental growth exaggerated and distorted by disease, and are therefore not to be regarded as indications of a specific affection. Disease attacking an undeveloped organ has a natural tendency to interfere with its further development. This we see in every tissue from dental to cerebral. Hence it may often be that cases commencing at the period between puberty and adolescence, and not recovering, retain the impress peculiar to the adolescent mind when the patient's actual age is far past adolescence, but this does not go to prove that there is anything specific in the affection running this course. Kräpelin admits that any of the symptoms characterizing dementia præcox—verbigeration, playing with words, automatic obedience, stereotypy, catalepsy, grimacing, etc., may occur in individual cases of other forms of insanity besides precocious dementia. Furthermore, though 60 per cent. of cases occur before the twenty-fifth year, yet cases may begin much later; nay, Kräpelin quotes with approval an observation of Schröder's of a case beginning at fifty-six years. Again Kräpelin emphasizes the fact that in 20 per cent. of cases which overtly appear at the usual period, investigation proves eccentricity, etc., from the very earliest age. Finally, "causes" are described for dementia præcox as for other mental

affections, and among these cases are typhoid, scarlet fever, imprisonment, the puerperal state, etc. Surely these are very hard sayings. It is difficult to ask one to believe in the existence of a disease so little differentiated from everything else. But it needs here also to be again pointed out that Kräpelin does not claim so much for his precocious dementia as do his followers. He expressly states that the existence of dementia præcox as a separate and distinct disease is doubtful, and he points to the prognostic advantage of stringing together what may after all later on prove to be separate affections by the common thread of their tendency to dementia. In conclusion, he said, that considerable value attaches to the discussion of Kräpelin's doctrine of precocious dementia, though one may draw conclusions quite the opposite of his. First of all, in opposition to the notions current a quarter of a century ago, it is important to clearly recognize that all cases of mental disturbance are not favorable according to the youthfulness of the person attacked, but that a large number of people in whom insanity appears before the mind has fully developed suffer from the consequences of a permanent arrest of mental growth, do not recover, and exhibit during, perhaps, a life-long illness the peculiarities of the period of life at which their development stopped. That there are any definite indications by which such unfavorable cases can be recognized or foretold, and that they form a definite, even though a multiform, group of mental diseases, must be held to be entirely unproven. Classification is not a very important thing in the existing state of psychiatry, except for convenience in teaching, and the mere nomenclature of disease is of little value save as an index of our knowledge or ignorance. Taking note, however, of natural groups is of vast importance with a view to prognosis and to treatment, and it is therefore safer and more scientific to have no classification than one which confuses together under one denomination groups that have no natural connection, more particularly when such classification tends to establish counsels of despair.

SECTION ON MEDICINE.

Tuberculous Pleural Effusion and Pneumothorax. Dr. William Osler said that at the threshold of the discussion the question arises, Which are the tuberculous pleurisies? Clinically these great groups of pleurisy with effusion may be recognized: (*a*) pyogenic, (*b*) the meta-pneumonic, and (*c*) the tuberculous. During the past twenty-five years the evidence has been accumulating in favor of the tuberculous nature of a large proportion of all cases of simple sero-fibrinous pleurisy. The exact percentage is hard to determine, but, in the absence of pneumonia or sepsis, the very existence of a pleural exudate is in itself sufficient to raise a supicion of tuberculosis. This view is based upon: First: The finding of tubercles in cases of sudden death in pleurisy with effusion. The literature contains many such instances in which, as a rule, tuberculosis had not been suspected, but the pleurisy had been attributed to cold, to injury, or to rheumatism. The traumatic cases are still more striking, and the evidence has been accumulating to show the tuberculous character of the pleurisy which follows falls or blows in the chest. Secondly: The frequency with which healed tuberculous pleurisy is met with in the post-mortem room. From Létulle's laboratory an interesting study has been recently published by Trouvé: among 303 cases of other diseases, the pleura was involved alone in 59. Thirdly: A study of the exudate: (*a*) The general characters present nothing distinctive. In acute cases it may be of turbid and dark brown color, with much fibrin, and not infrequently blood. In the more chronic cases it is clear, or has a slightly greenish of opalescent tint. The fluid is sterile as a rule, or the bacilli are difficult to find. (*b*) Cytological. The studies of Widal, Gull, and others have shown that in tuberculous cases the exudate contains small mononuclear leucocytes. (*c*) Bacteriological. The tuberculous exudate is stated to be sterile, but with the newer methods the bacilli may be found in a considerable proportion of the cases. After contracting into a fairly small volume the coagulum is removed and placed in a pepsin HCl mixture. When well digested in the thermostat the fluid is centifugalized and the sediment searched for bacilli. Of the last twenty cases in his series bacilli were present in the exudate in 4. (*d*) Inoculation. When the centrifugalized sediment or a large amount of the exudate is used the results have proved positive in a large number of cases—65 per cent. (Eichhorst) to 85 per cent. (Le Damany) in 55 cases quoted by Chevastelon. (*c*) The observations in the agglutination test are, as far as he knows, not extensive enough to warrant conclusions to be drawn from them. Fourthly: The presence of tuberculous foci in other parts—an old bone lesion, an adenitis, a fistula in ano, an epididymitis, or a chronic peritonitis. A latent pulmonary focus is not infrequent. Of 195 cases of pleurisy with effusion admitted to his wards, exclusive of all patients with obvious pulmonary tuberculosis, there were 30 in which tubercle bacilli were demonstrated in the scanty sputa. Repeated examinations were made in each case, and even when the patient insisted that he had no cough, he was urged to try to spit out anything he could. In one case fully a score of examinations were made before bacilli were found. Fifthly: Many cases of pleurisy with effusion subsequently became phthisical, the percentage varies from 15 per cent. (Cabot) to 45 per cent. (Hodge). Of 86 cases from his wards in which the after-histories were studied by Dr. Hamman, 34.8 per cent. became tuberculous and died. Grouping together the statistics which have been gathered on this point, the percentage is about 30. Sixthly: A characteristic tuberculin reaction has been obtained. Beck gave tuberculin to 68 patients with pleurisy, and 50 reacted (73.2 per cent.); F. W. White gave tuberculin to 8 cases of acute pleurisy, and 7 reacted. And, lastly, certain clinical features, as insidious onset, protracted course, early thickening with retraction, hemorrhagic character of the exudate, etc.

It is not always possible, nor is it necessary, to obtain this positive evidence. It makes no difference in the local treatment, and for general purposes it is best to assume every case to be tuberculous, unless there is very good reason to think otherwise. The acute sero-fibrinous and the subacute and chronic serous forms are the most important in connection with this discussion. It is interesting to note how often the acute form is a terminal event in chronic diseases, but a considerable proportion of the cases in young, healthy persons belong to this group, in which the suddenness of the onset and the intensity of the symptoms may be marked. The exudate is sero-fibrinous, and there is much fibrinous plastering on the surfaces. The fluid has a brownish tint, and is not infrequently bloody. In the subacute and

chronic serous form the exudate is more often opalescent, with scanty cell elements, and there are no fibrin flakes on the pleural surfaces, which are smooth and not acutely inflamed. The purulent tuberculous pleurisies are usually chronic, but there is an acute suppurative form running a course of great intensity, with abundant bacilli in the pus. To be profitable a discussion should be limited to questions still in dispute, or to points which new knowledge has brought into prominence. He proposed for discussion, first, the value of early and repeated aspirations in the acute forms; secondly, the uselessness of drug treatment; and, thirdly, the need of more careful after-treatment, local and general.

Aspiration has been in use for more than half a century, but it has been as an adjunct or supplementary to other measures, not as the treatment itself. Most of us have followed H. I. Bowditch's original indications (1850)—to tap when the symptoms were urgent, or the side was full, or in a moderate effusion, if it had lasted more than a few weeks, and was disposed to resist ordinary modes of treatment. Of late years there has been a tendency to resort to tapping much earlier, and not to wait until the fever has subsided—to make tapping an *indicatio morbi*, not simply an *indicatio vitalis*, or symptomatic, as, following Bowditch and Trousseau, we have hitherto done. The advantage of this plan was emphasized by Castiaux as early as 1873. The question was forcibly brought before the profession about eighteen months ago, when Dr. Delafield reported 200 cases of pleurisy, with effusion, treated at the Roosevelt Hospital, New York, from 1886 to 1901. In the first 82 cases medical treatment and aspiration were employed, in 118 aspiration alone. One hundred and eighty-two patients left the hospital cured, six left the hospital within ten days after aspiration and probably recovered; six were improved, but the results were uncertain, and in six there was no improvement. Sixty-four patients were cured within a week of the aspiration. There were no deaths. Dr. Delafield remarks that in private practice the results are still better: "In the fortunate cases, within twenty-four hours there is no more fluid and no more pleurisy. In a large number of cases the pleurisy is cured within a week." Those who know the highly-trained clinical judgment of Dr. Delafield will be able to appreciate at its true value this important contribution. He had been in the habit of treating pleurisy with effusion either by what is called the "thirst" method or by tapping and the administration of tonics and occasionally of the iodides and the use of counterirritation. In the eighteen months since the appearance of Dr. Delafield's paper there had been 22 cases in the wards, two of which were admitted as the effusion was subsiding, and were not tapped. In the others the effusion was treated by aspiration alone. In five the condition was chronic on admission, the effusion having lasted for two or more months. Four of these left the hospital improved and one well. The other 15 were discharged well. Only three of these cases were admitted in the first week, and the earliest tapping was done on the tenth day. Five cases were tapped twice, two three times, and one four times. Of this group of 20 cases, seven were shown to be tuberculous; in four bacilli were demonstrated in the exudate, in two bacilli were found in the sputa, both acute cases, which had not been under treatment for any pulmonary disease. One patient, ill for two and a half months on admission, was discharged improved, and was readmitted with miliary tuberculosis ten weeks later. These results are very brilliant, and not to be compared with Delafield's. The average stay in hospital was thirty-two days, the shortest was six days.

The Treatment of Chronic Renal Disease.—Dr. Hale White said that the title of this discussion is the treatment of chronic renal disease, but the conditions of kidney known as chronic nephritis, chronic Bright's disease, the granular kidney are so much more frequent than other chronic diseases of the kidney, that he confined himself to them. The difficulties of the subject are very great; for, although all are familiar with the morbid histology of chronic Bright's disease, its pathology is unknown and why it is fatal is a question; also, the health of sufferers from it fluctuates so, apart from treatment, that it may be difficult to say whether any particular treatment is beneficial. Therefore, it is probably best to discuss it under two heads—namely, the treatment of particular symptoms, and that employed owing to theoretical views as to the nature of the disease. A symptom which has been energetically treated is albuminuria, in his opinion quite wrongly, and often with disastrous results. The mere presence of albumen in the urine is usually of itself of little importance except as a help to diagnosis. It is so often met with in specific fevers, heart disease, renal calculus, cystitis, and other disorders, that about half the invalids who have albuminuria do not suffer from Bright's and yet those who try to treat it when it is associated disease, with Bright's disease neglect it in other maladies, and forget its ferquent occurrence in healthy youths. All doctors of long experience can call to mind persons who have passed albumen in their urine for twenty years or more without harm. A little calculation will show that a few grams only are passed daily in most cases of chronic Bright's disease, and the loss of proteid in this way is quite trifling, and could easily be compensated by a little more in the food. Whoever heard of death due to albuminuria? He had great sympathy, he said, with a celebrated physician who, when the treatment of albuminuria was much in vogue, said if he ever had it he trusted he would never know it. Much harm may be done to patients with chronic Bright's disease by frequent examination of the urine, for they become depresed unnecessarily if the quantity of albumen increases a little, and unduly elated if it decreases. Often, too, the examinations are valueless for comparison, as only a rough percentage of albumen is stated, without any reference to the total amount of urine passed in twenty-four hours. Albuminuria is a very important help to the diagnosis of all forms of Bright's disease, and steady fluctuations in its quantity are of great aid in enabling one to estimate the progress of acute and subacute cases; otherwise it is unimportant, and is, indeed, often slight for some time before death from chronic Bright's disease. But not only is the mere symptomatic treatment of the albuminuria wrong, but, as he had pointed out in a paper written eleven years ago, a milk diet, which is chiefly relied upon to reduce albuminuria, frequently fails to do so, and the sufferer from chronic Bright's disease is in many ways worse for the milk.

He then spoke of the symptoms connected with the cardiovascular system. Two extremes are met with—both bad—in chronic Bright's disease. Some patients have such a hypertrophied heart and high-tension pulse that they die of cerebral hemorrhage; others have a feeble pulse of low tension, a dilated

heart, possibly mitral regurgitation, and they die from cardiac failure. Those of the first group must keep down their arterial tension; physical exercise must be gentle, excitement must be avoided, the bowels must be loosely open once every day, partly because so doing helps to keep the pressure low and partly to avoid straining at stool, for that, like any sudden exertion, raise the blood pressure. Cerebral hemorrhage has often occurred in the water-closet. Meals must be small; alcohol and much meat or preparations of it, as soup, beef-tea, and meat essences, must not be taken, as both alcohol and the extractives of meat raise blood pressure. Little fluid should be drunk; digitalis and other drugs which raise blood pressure are especially harmful, but an occasional venesection is beneficial. Those in whom the pressure is low and the heart weak often owe their condition to treatment. They have been kept too exclusively on milk or farinaceous diet. Over and over again it is forgotten when treating disease that you cannot starve one part of the body without starving the whole. Under the impression that a small supply of milk is the best diet for diminishing the work of the kidneys, the patient with chronic nephritis is starved and his heart suffers starvation—a state of affairs made worse by the fact that as the arteries thicken the heart's work increases. In the paper to which he had alluded, cases are given which show how such patients improve when they are allowed an ordinary diet containing a moderate amount of meat, often, too, a little alcohol helps them. Not only does their circulation benefit, but as they are no longer starved they feel better in every way. Some patients with chronic Bright's disease are kept too much in bed; the heart, like the rest of the body, becomes flabby, improvement in all directions follows getting up and about, the circulation and digestion are strengthened, and the patient feels better. Much judgment is required to estimate the amount of exercise a patient may take. Some, by their doctor's orders, take too little and become fat; this is particularly bad in chronic Bright's disease, for the heart often has as it is too much work owing to the arterial thickening, and therefore only harm can follow if it has to pump the blood through an additional amount of fatty tissue. Whether, when symptoms of uremia supervene, much fluid should be drunk will be discussed later, but for the greater part of the life of a sufferer from chronic Bright's disease he will be best if he only drinks a normal quantity for that will be the best for the circulation, although probably the evil effect of the heart of a large amount of fluid in the vessels has been exaggerated. Many diabetics drink largely, and yet the heart in diabetes is small. The error of so lowering the blood tension by diminishing the intake of fluid so as to give the heart too little work is hardly ever likely to occur. To sum up, the whole object as regards the circulation is to keep the vascular tension normal without the aid of drugs.

Excepting edema, caused by cardiac failure—and then it is best treated by trying to strengthen the heart—it is not sufficiently common in chronic intestinal nephritis for it to often require treatment, but it does in the chronic tubal variety. Slight or moderate degrees are best treated by posture; the legs may be raised if the edema is of the feet, or the patient may be turned first on one side and then on the other if it is of the back or lungs. Much may be done by limiting the amount of fluid drunk and also by seeing that the bowels are regularly well open and that the motions are rather watery. One can often do very well without diuretics, but if the state of the kidneys is very chronic and the blood tension is low some caffeine or a pill containing a grain of each of mercury, powdered digitalis, and powdered squill may be of use, but it is a mistake to depend much upon diuretics to relieve renal dropsy. Diaphoretics are of help; they will be discussed when speaking of uremia. The most efficient way to get rid of edema is either with needles or Southery's tubes to puncture the legs, which are then kept dependent; but there is no operation in which aseptic precautions are more necessary, for edematous tissues are an easy prey to streptococci, and fatal inflammation easily supervenes

To Avert Uremia.—It seems reasonable also to try to avert uremia by the same plan, therefore if a patient suffers from chronic Bright's disease the bowels should be well open daily; the sweat glands should be kept mildly active, but frequent excessive sweating is very undesirable, for it cannot be induced without damaging the circulation, and, as has been already pointed out, this must be maintained as healthy as possible. But the patient may have a warm bath every night, rub the skin quickly after it, and then instantly get into a warm bed. Woolen garments should be worn next to the skin. Egypt is the ideal climate, for the temperature is high and the humidity very low, hence the perspiration rapidly evaporates, and the patient is not oppressed by his sweating. But as the humidity is so low the air feels very cold at night, especially if there is a wind, consequently the patient will often require to clothe very warmly after sunset, and this is especially true if he is on a boat on the Nile. Further, far up the Nile, as at Assouan, it may be difficult to get food proper for an invalid. For a few patients an occasional Turkish bath may be allowed, but usually not, on account of the harm that may be done to the circulation. Keeping the sweat glands active not only aids elimination but helps to prevent or remove edema. Perhaps this is the best place to draw attention to the fact, often forgotten, that a close relationship exists between the skin and the kidneys. The harm of chilling the skin may happen in more ways than one: excretion by sweat is stopped, contraction of the cutaneous vessels tends to raise the blood pressure and throw more blood into the kindeys; it also tends to raise heat production, and possibly therefore to increase some poisonous products of metabolism. To avoid chilling of the skin clothing should be warm, and it is especially necessary to change any that has become wet either from rain or sweat.

There is not much to say about the treatment of individual symptoms of uremia beyond what has been said about that of uremia generally. One should not be too hasty in attempts to check diarrhea and vomiting, for it should be remembered that they are eliminative. The severe headache so often associated with a high-tension pulse is sometimes relieved by nitrites, and both it and the sleeplessness may be diminished by a hot bath immediately before going to bed. If a hypnotic is required chloralamide is one of the best. Uremic dyspnea is often very hard to deal with. In addition to the general treatment of uremia nitrite of amyl may give relief, and sometimes oxygen is of use.

(To be Continued.)